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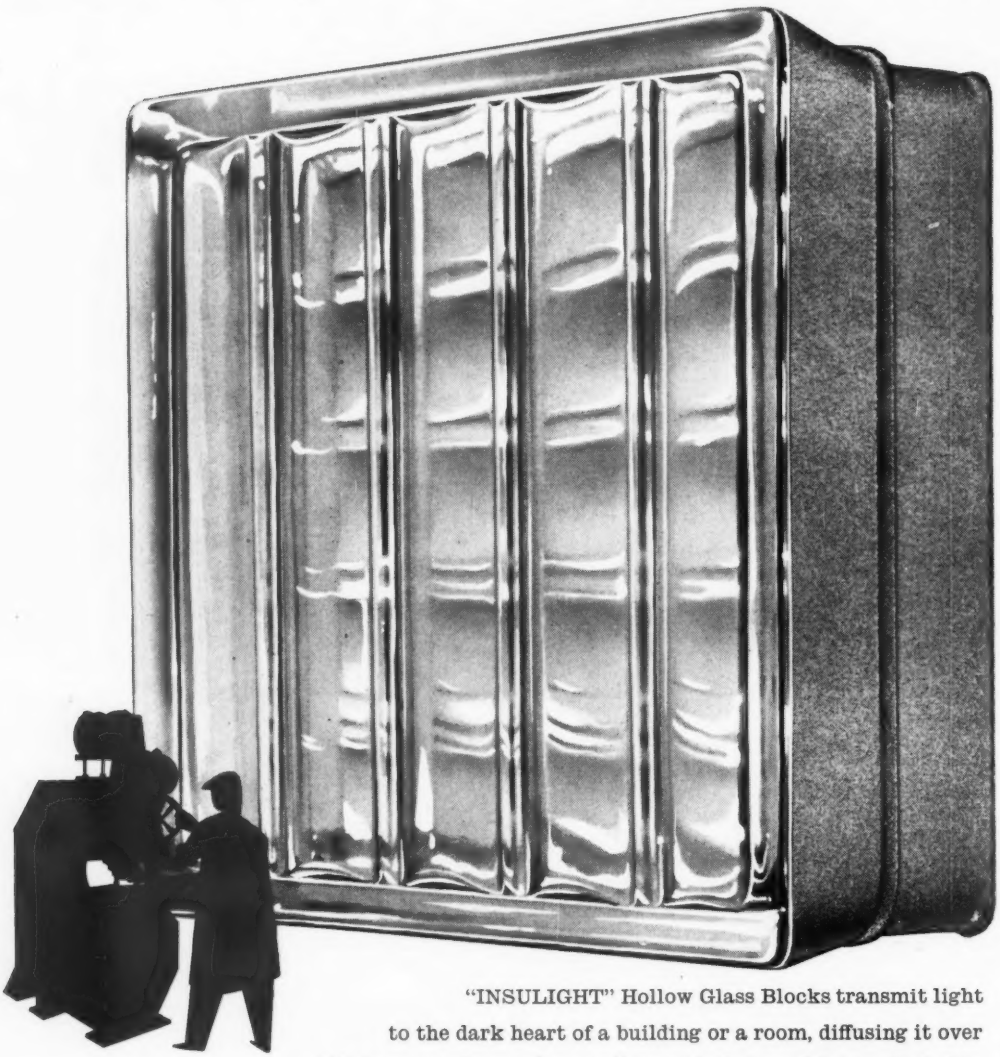
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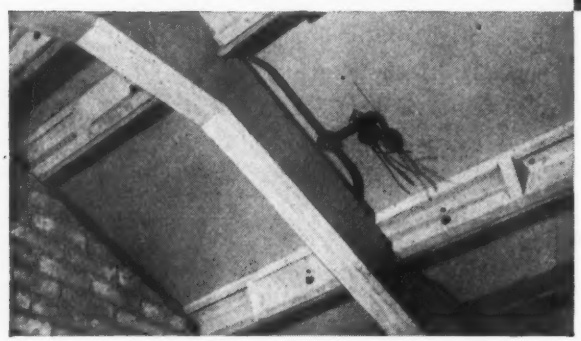


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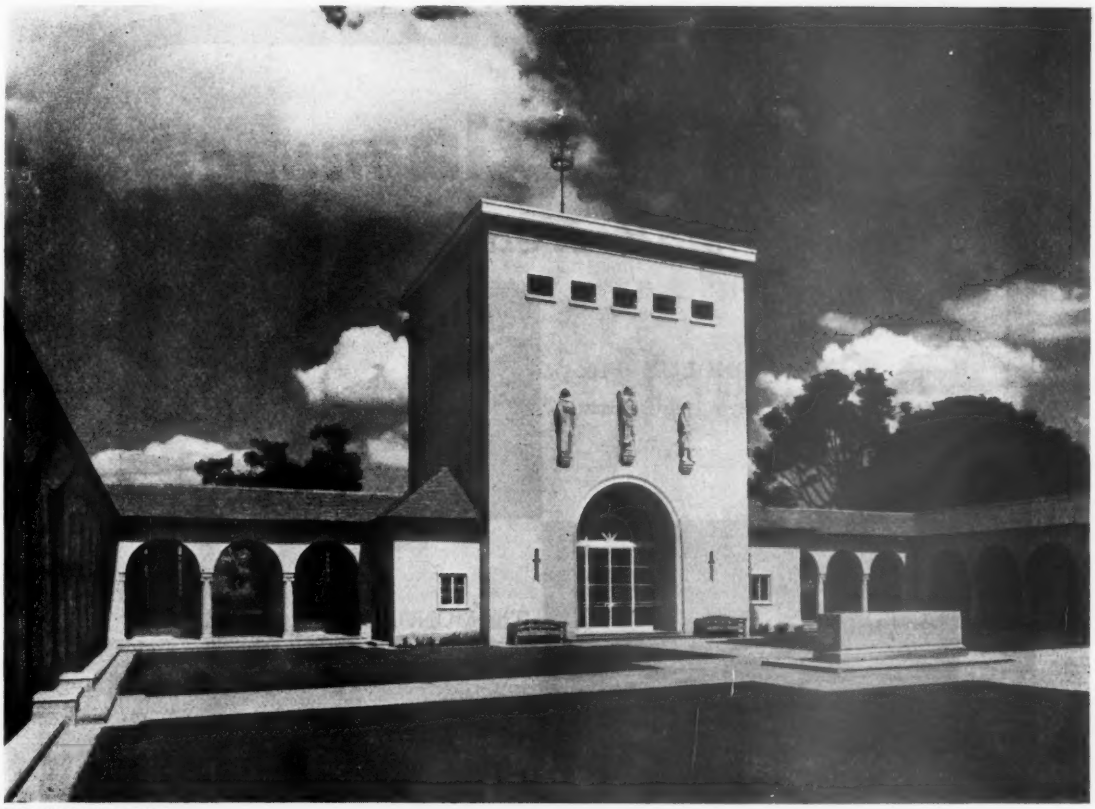
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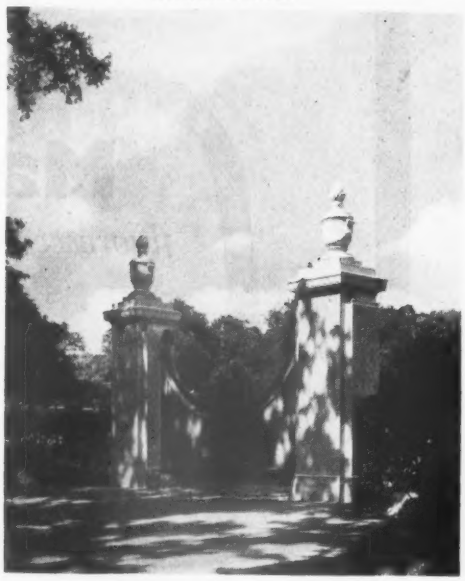
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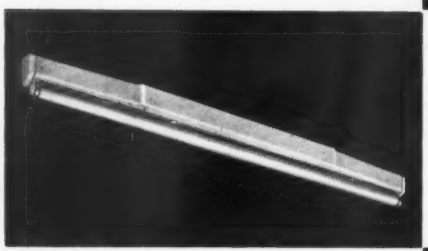
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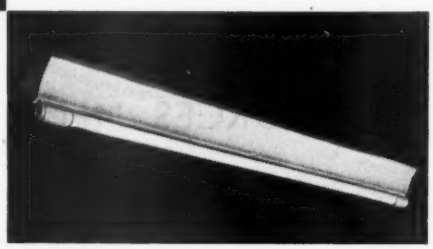
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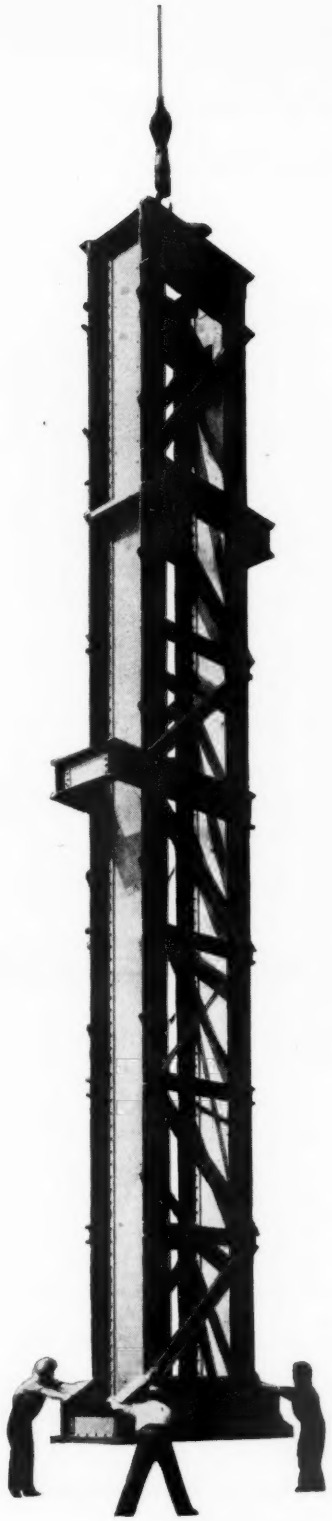
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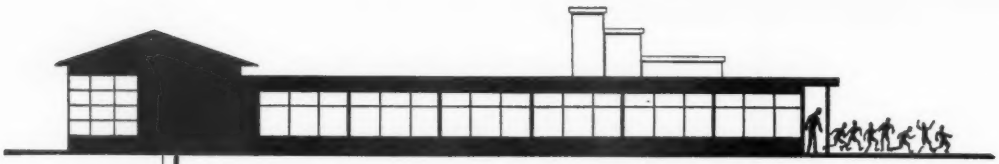
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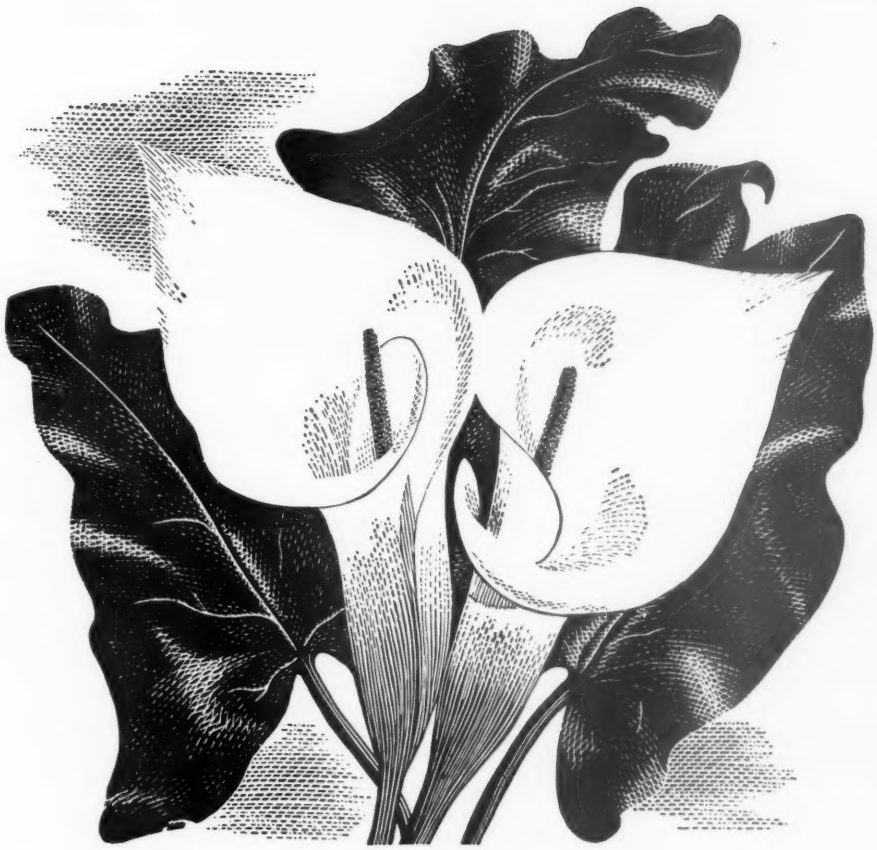
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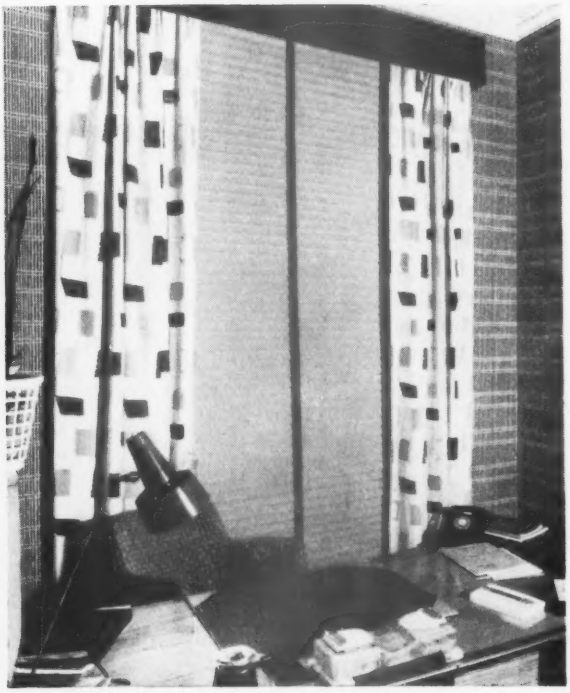


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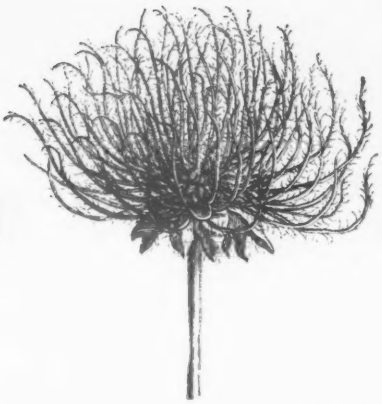
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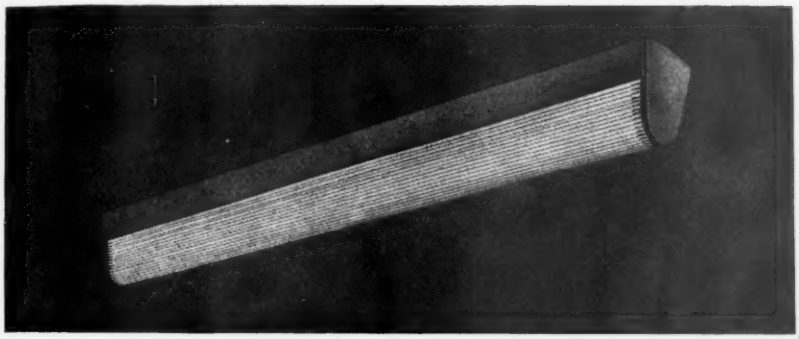
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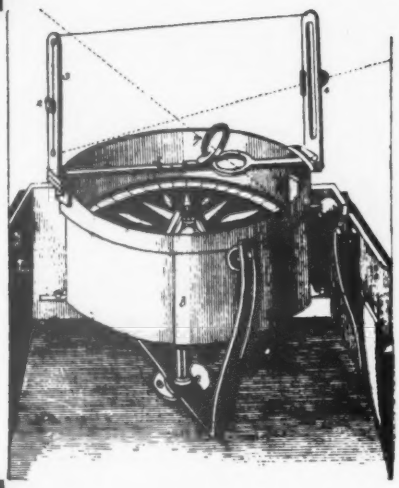
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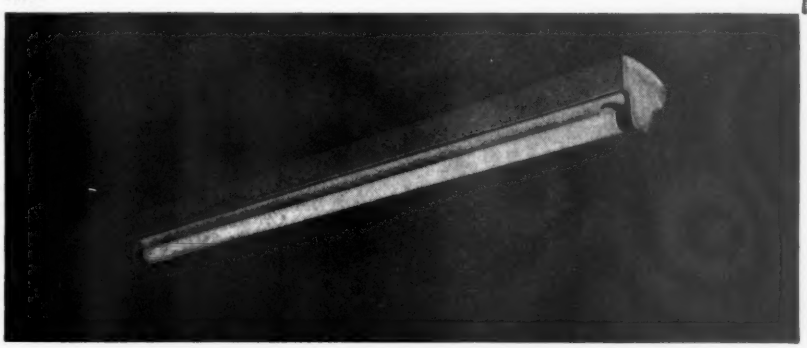


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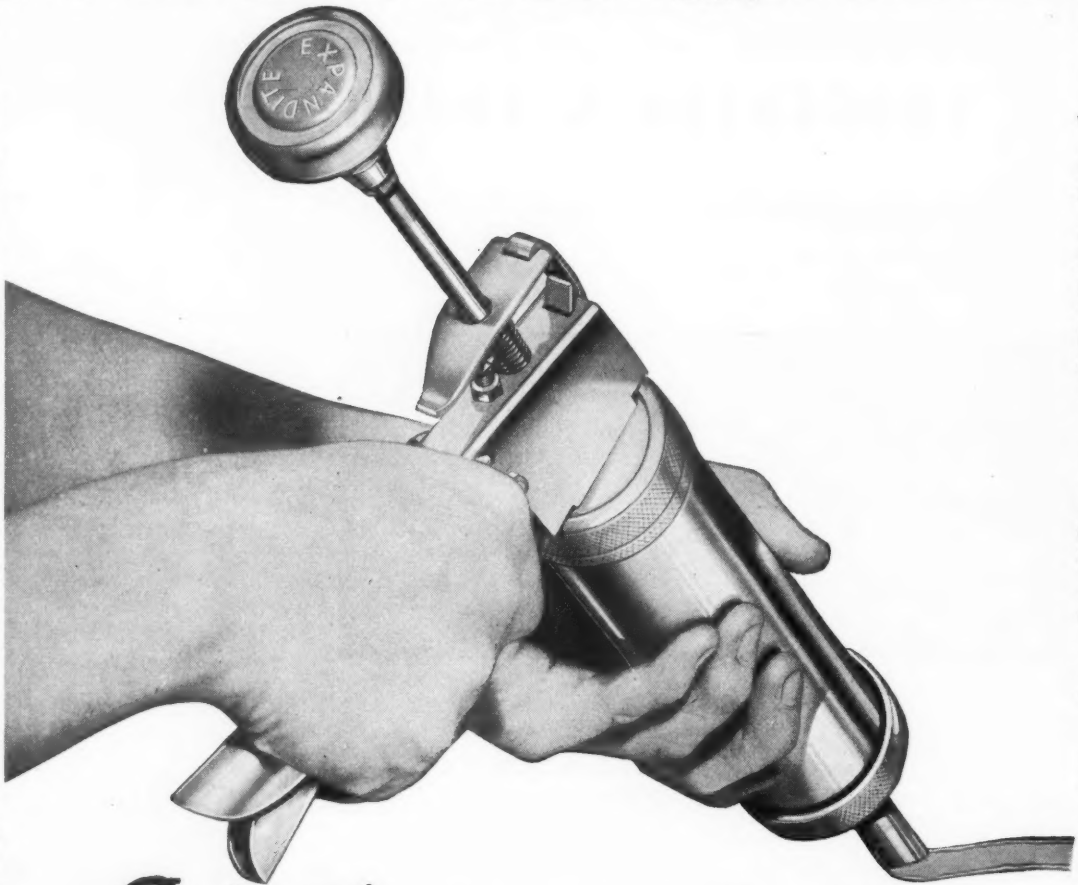
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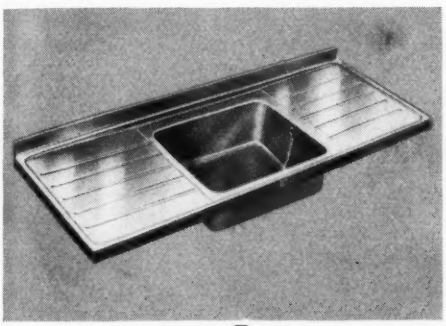
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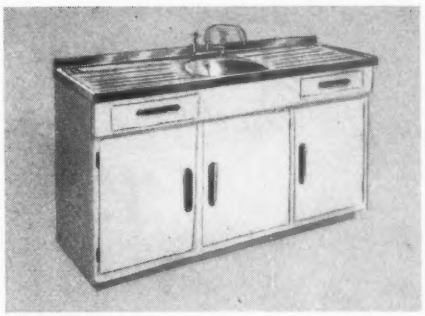
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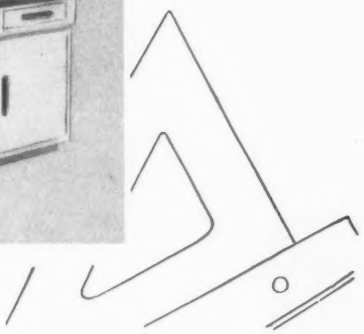
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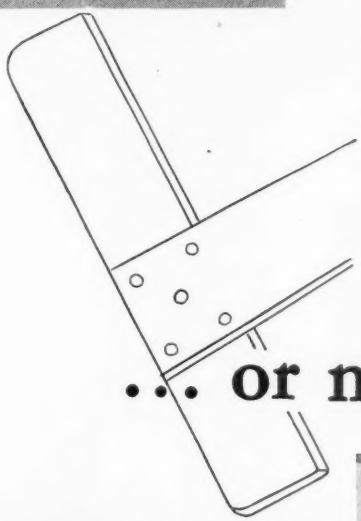
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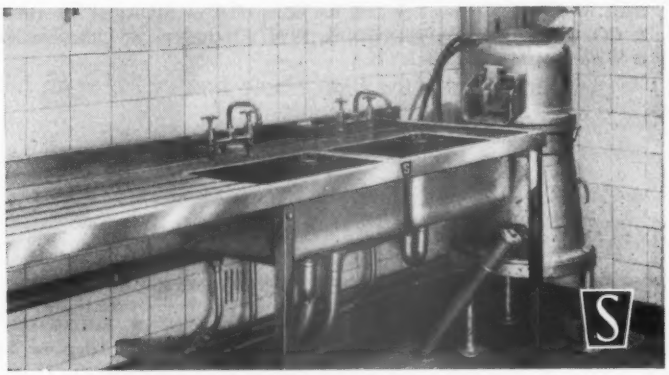




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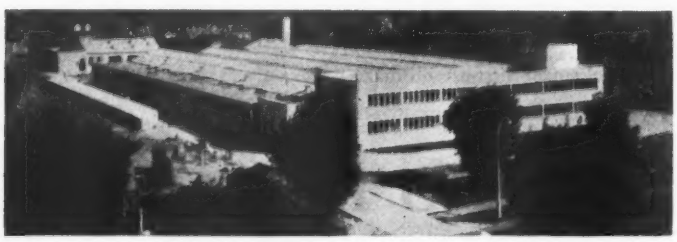
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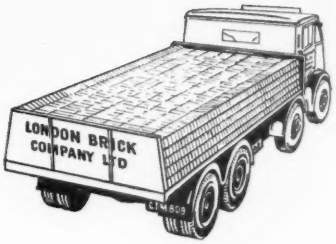


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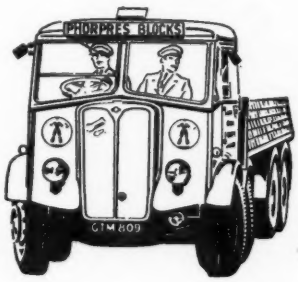
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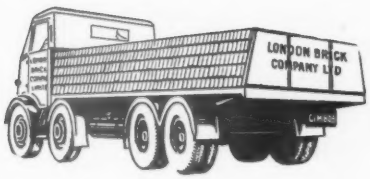
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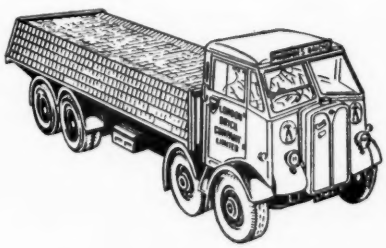


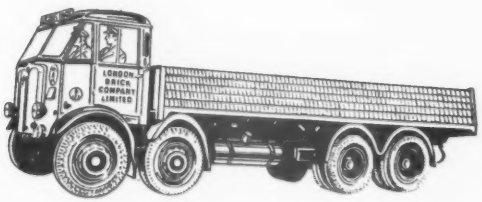
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Consulting Engineers: ANDREWS, KENT & STONE.

General Contractors: C.A.S. (CONTRACTORS) LTD.

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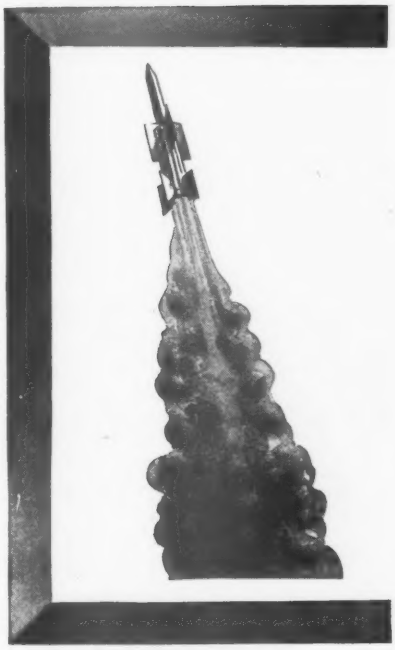
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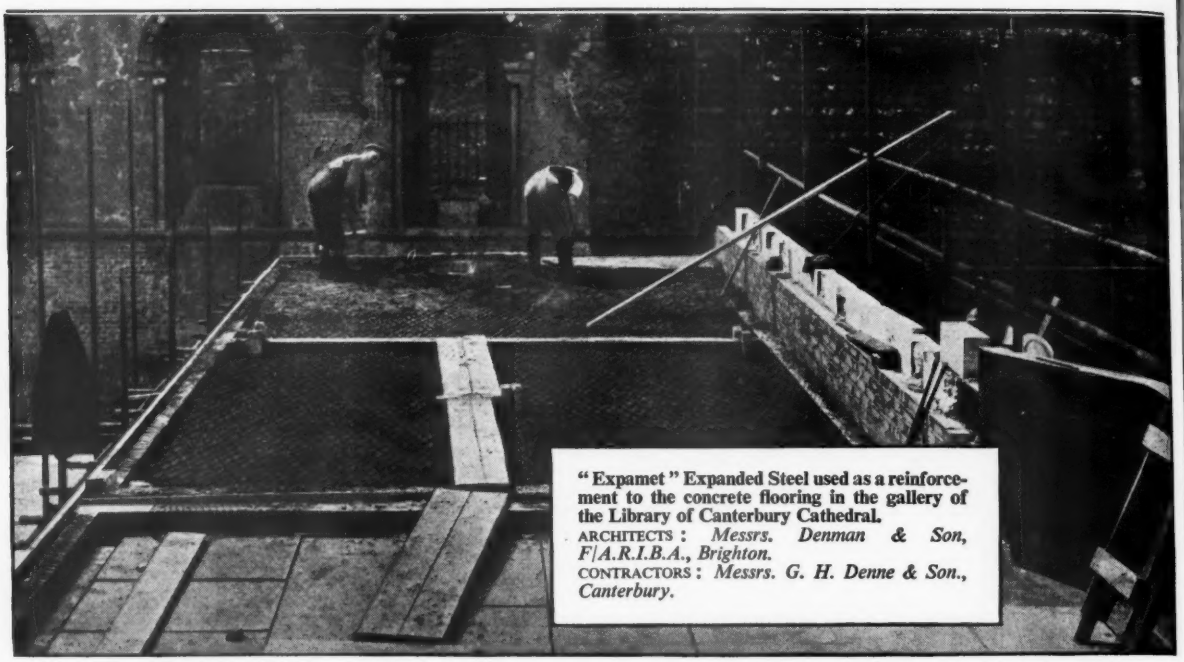
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ARCHITECTS: *Messrs. Denman & Son, F/A.R.I.B.A., Brighton.*
CONTRACTORS: *Messrs. G. H. Denne & Son., Canterbury.*

'Expamet' Expanded Steel used in reinforcement of the Library of Canterbury Cathedral

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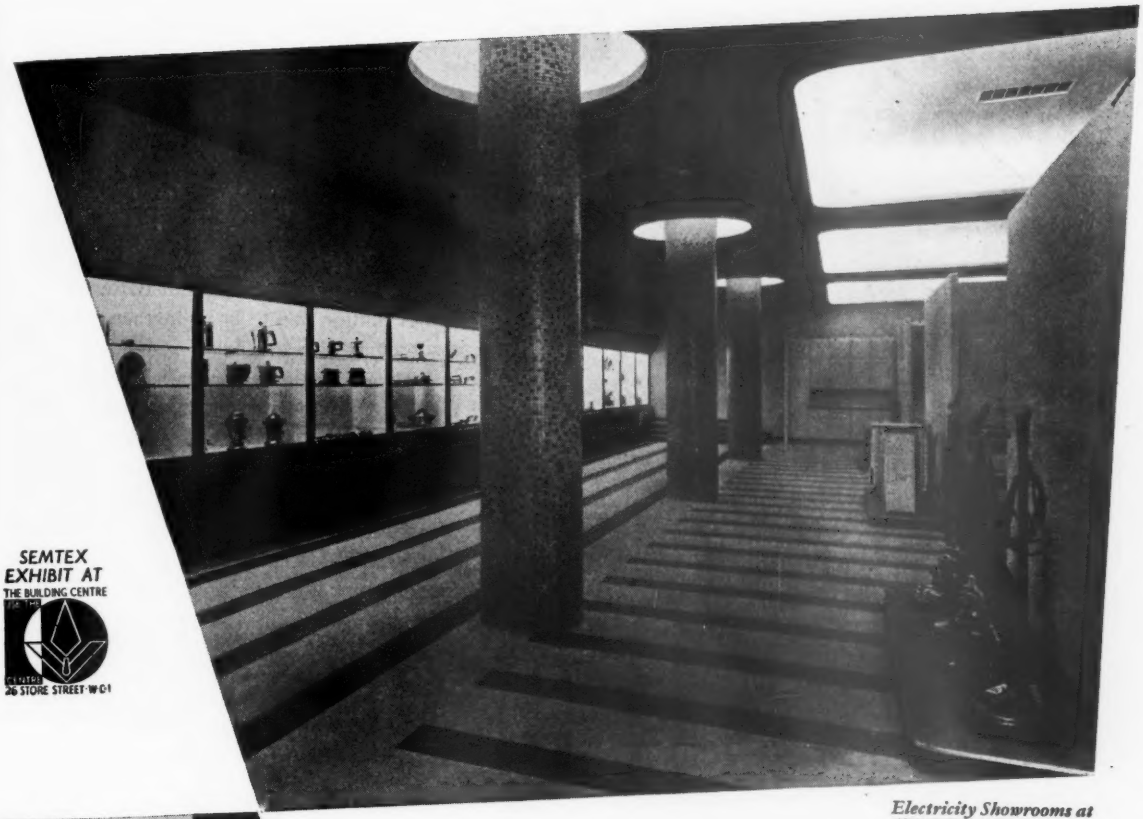
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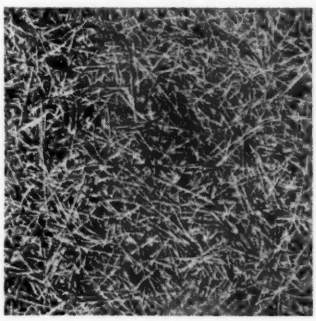
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Architects : Metropolitan Water Board Chief Engineer's Dept.
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"GYPKLITH" Acoustic Tiles 2′ 0″ square x 1″ thick bevelled on face edges are made from specially treated fine wood fibres bound with cement and compressed to form a porous, rigid, fire-resisting tile with an attractive appearance (*see inset photograph*).

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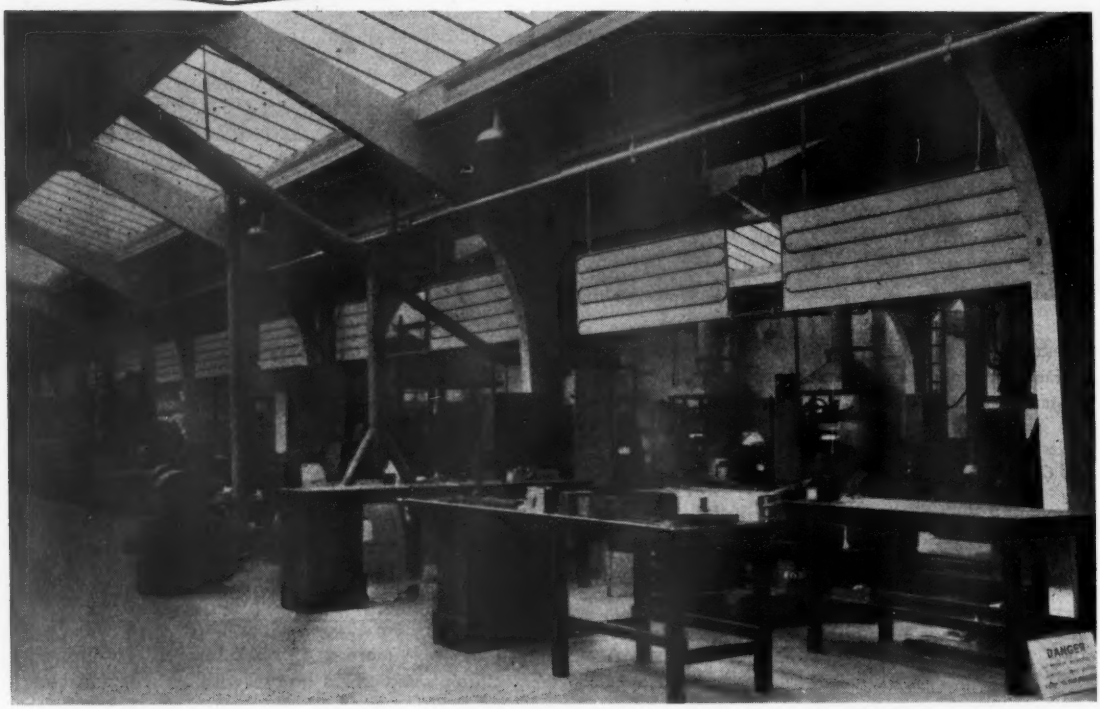
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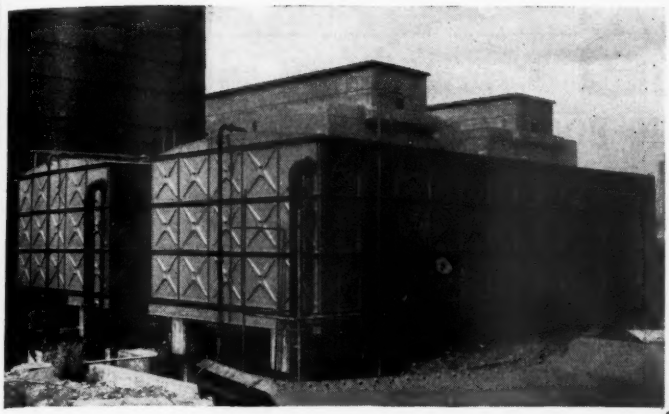
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BP49



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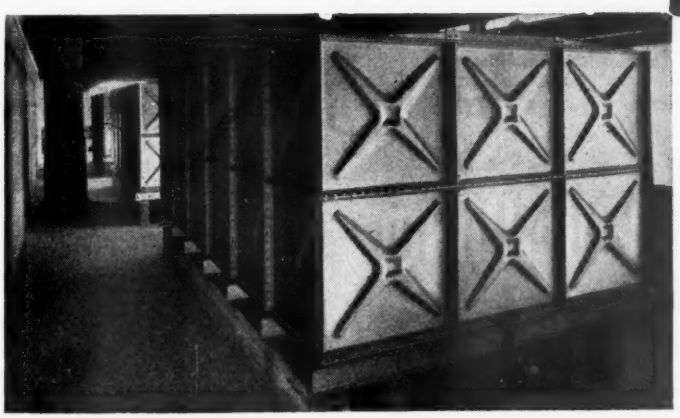
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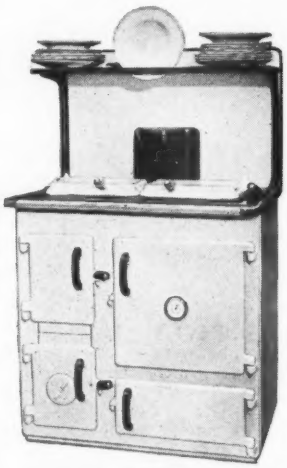
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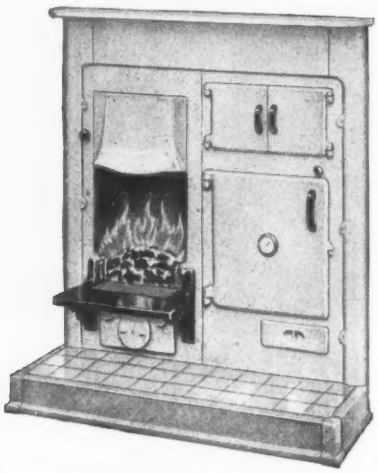
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Layout Drawings prepared in co-operation with Architects.

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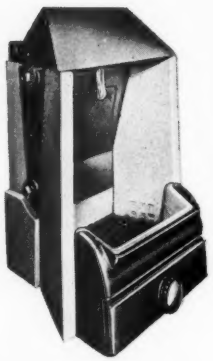
The DERWENT Combination Grate

One economical fire provides heat for large oven, fast-boiling plate with extension hob and hot closet. Ample domestic hot water and controlled room warmth. Overnight burning.

The CROMFORD COOKER

The perfect all-purpose stove for cooking, water heating, space heating. Burns any solid fuel and can be regulated for overnight slow burning.

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together in one economical material!



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The world renowned thermal insulation of Celotex is now combined with the fire resistance of asbestos to form Celotex Fire Resistant Insulating Board. It's a core of tough, durable Celotex cane fibre insulation sheathed on both sides with asbestos felt, which, if required, can be easily decorated.

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- *Core of cane fibre insulation*
- *Asbestos sheathed on both sides*
- *Attractive light-reflecting surface*
- *Can be easily decorated if required*

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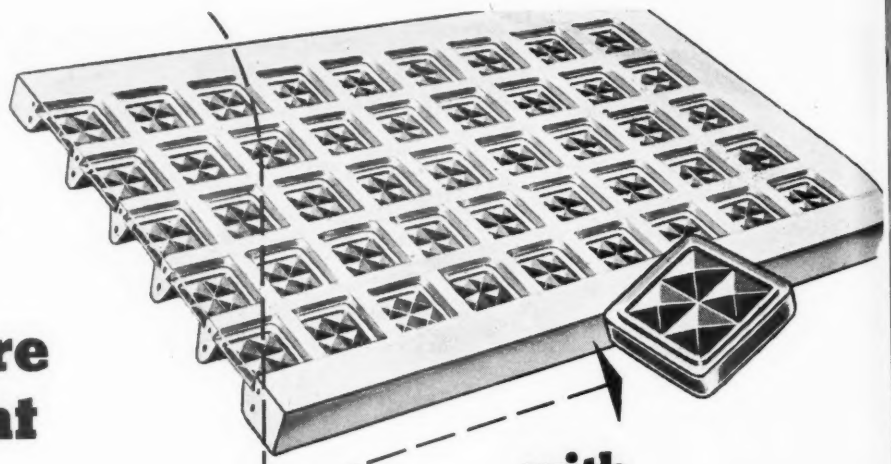
Doors, Parliament Buildings, Quebec. Architects: Lacroix and Drouin, in association with J. S. Bergeron. Craftsman: Mr. Charles Martin.

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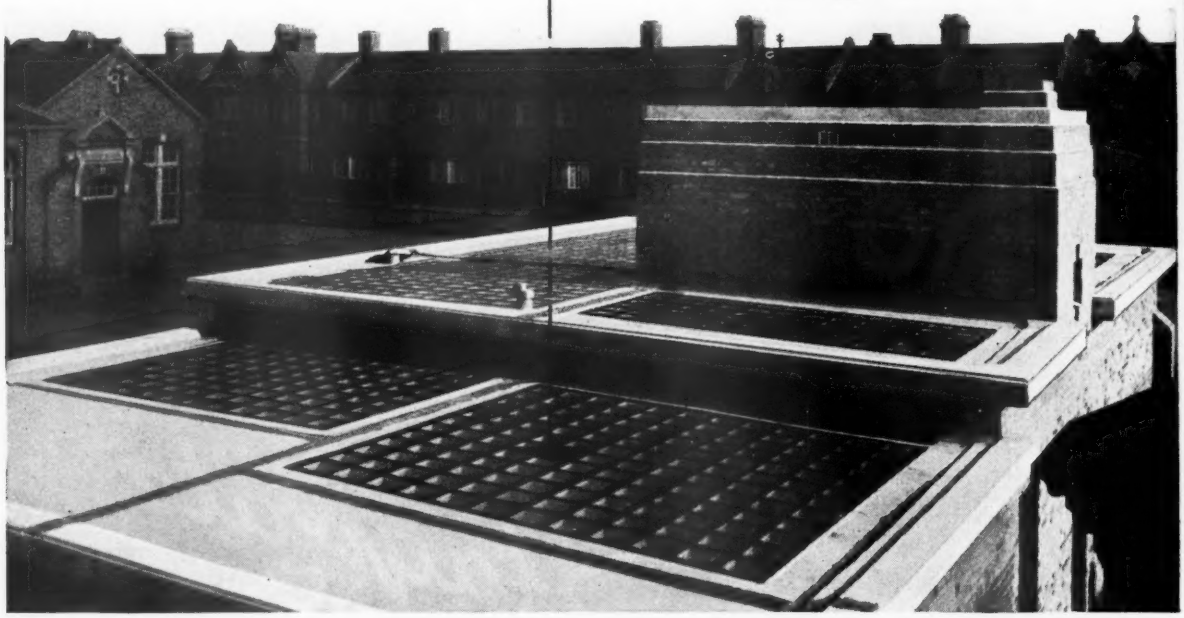
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For all roof and pavement light installations specify GIRLINGS' 'Magna Lights'. Available in a wide range of sizes and patterns and treated at the edges to insulate against temperature changes, they combine high mechanical strength with a strong and pleasing diffusion of light.



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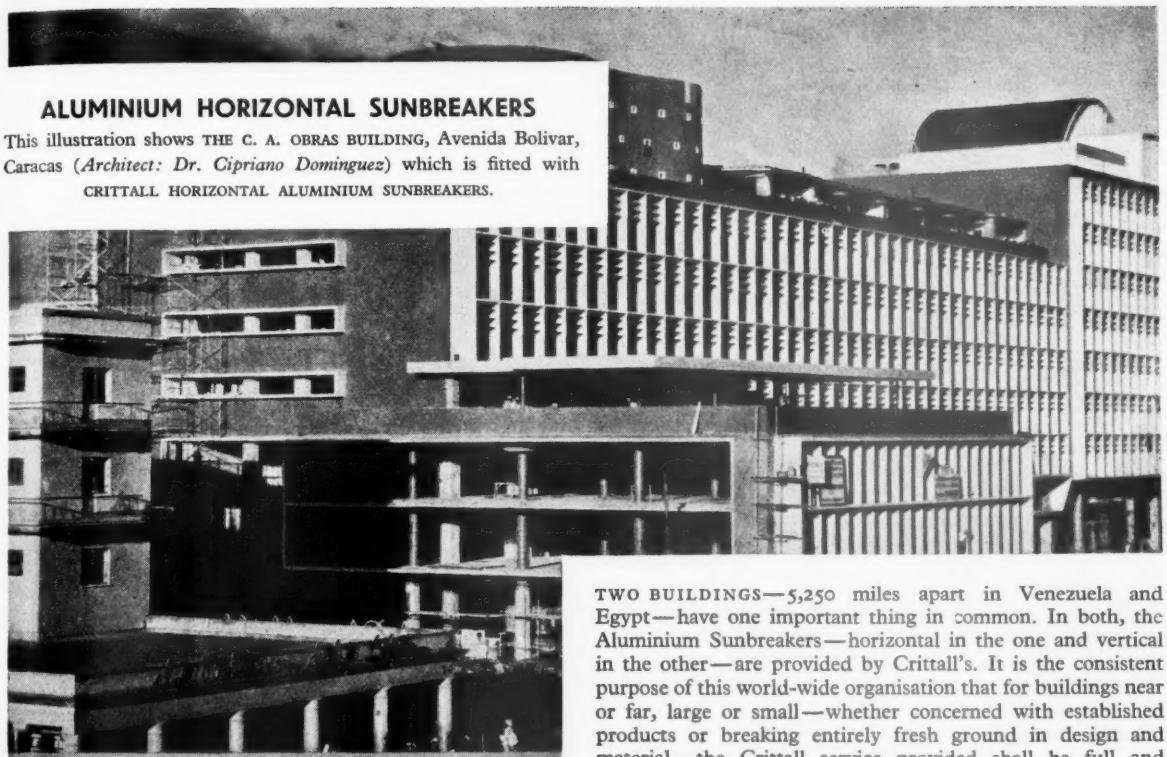
A recent Girlings' Roof Light instaliation at Copper Mil' Road Junior Mixed and Infants' School. Architect: Borough of Walthamstow, Committee for Education, Architect's Dept.

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ALUMINIUM HORIZONTAL SUNBREAKERS

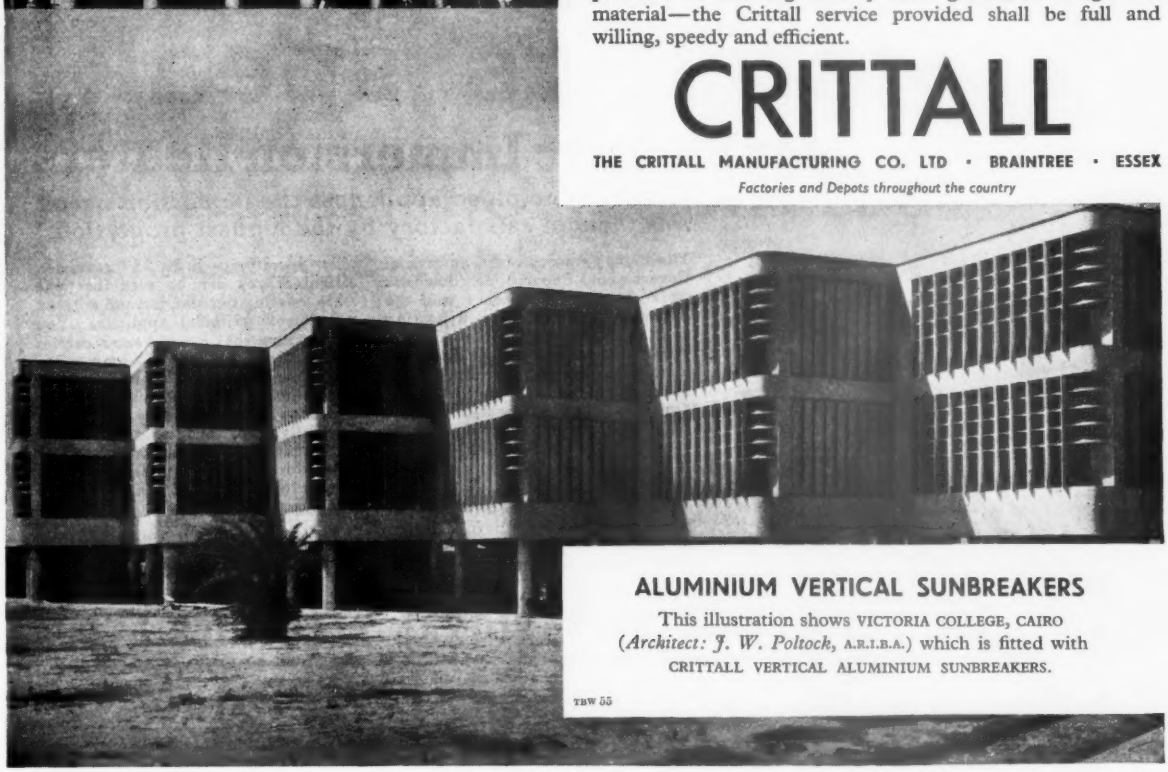
This illustration shows THE C. A. OBRAS BUILDING, Avenida Bolivar, Caracas (*Architect: Dr. Cipriano Dominguez*) which is fitted with CRITTALL HORIZONTAL ALUMINIUM SUNBREAKERS.

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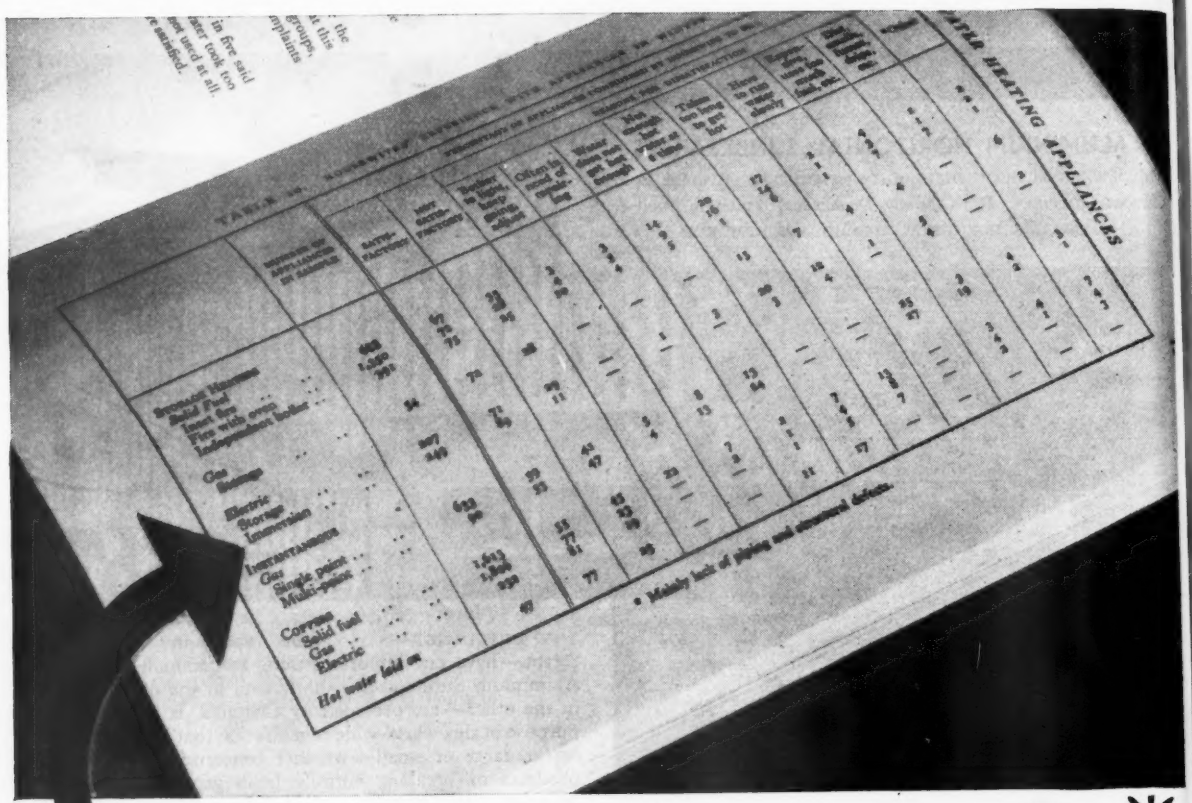
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ALUMINIUM VERTICAL SUNBREAKERS

This illustration shows VICTORIA COLLEGE, CAIRO (*Architect: J. W. Poltock*, A.R.I.B.A.) which is fitted with CRITTALL VERTICAL ALUMINIUM SUNBREAKERS.

TBW 55



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for Electric Immersion Heaters

"Amongst the piped appliances the immersion heater was thought satisfactory by the highest proportion."

The above paragraph from an official Government Report* on domestic water heating is evidence that the consumer *wants* immersion heating as a supplementary system. The investigation found that 89% of the housewives using immersion heaters found them satisfactory. The next highest proportion of satisfied users for any appliance was 75%, whilst others were as low as 53%.

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By specifying B. N. E. Immersion Heaters you can be sure that you are meeting popular demand with an extremely efficient appliance. You will know that every heater carries the reputation of an organisation with over 75 years' experience in the electrical field ; a firm with depots throughout the country staffed by qualified men ready to give you advice and service without obligation. Ask for publication HD 23 which gives full details of B.N.E. Immersion Heaters and Circulars

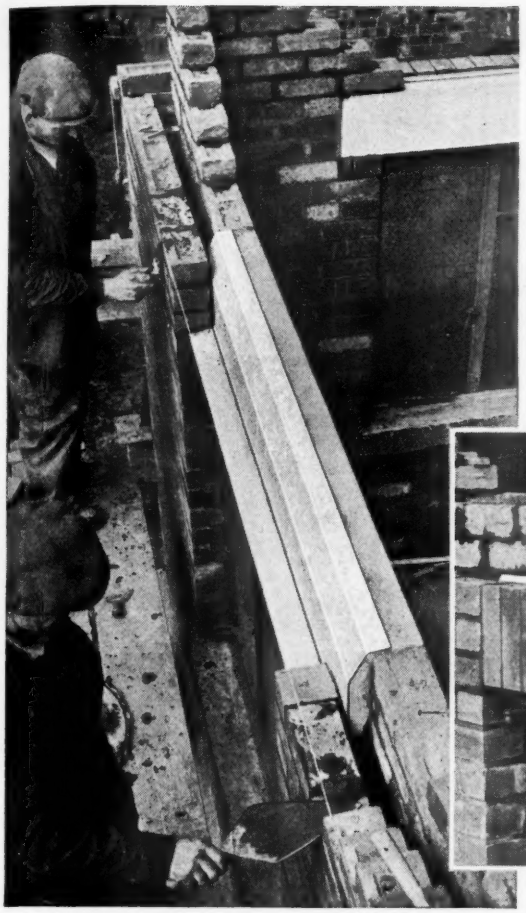
* National Building Studies Special Report No. 8 "An Inquiry into Domestic Hot Water Supply in Great Britain" (H.M. Stationery Office)



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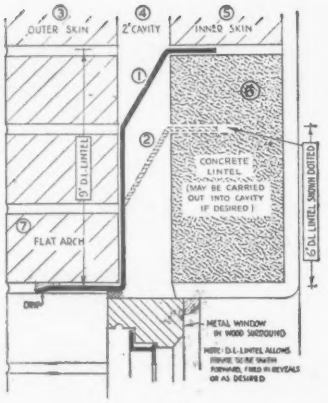


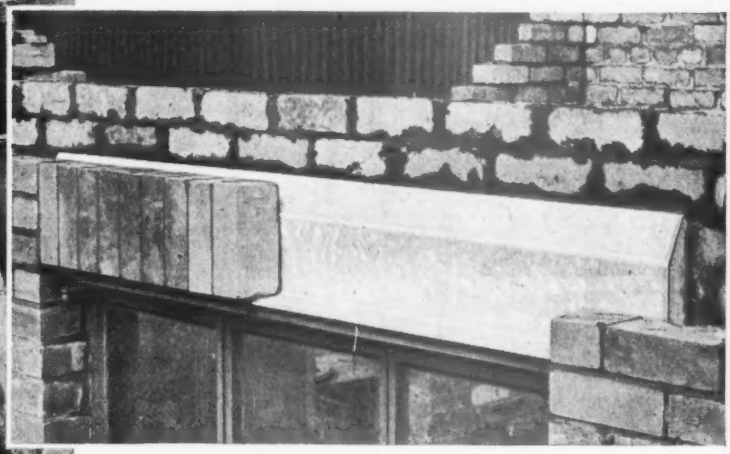
SECTION SHOWING TYPICAL DETAIL

(1) 9 in. Dorman Long Lintel
(2) 6 in. Dorman Long Lintel (shown dotted)
(3) Outer skin
(4) Cavity
(5) Inner skin
(6) Inside concrete lintel (carried out into cavity if so desired)
(7) Flat arch

The wide 'turn-in' of the Dorman Long Lintel allows the cavity to be varied from 2 in. to 2¾ in. in width.

Patent No. 694214





THE DORMAN LONG LINTEL

Combined Angle Arch Support & Dampcourse Tray

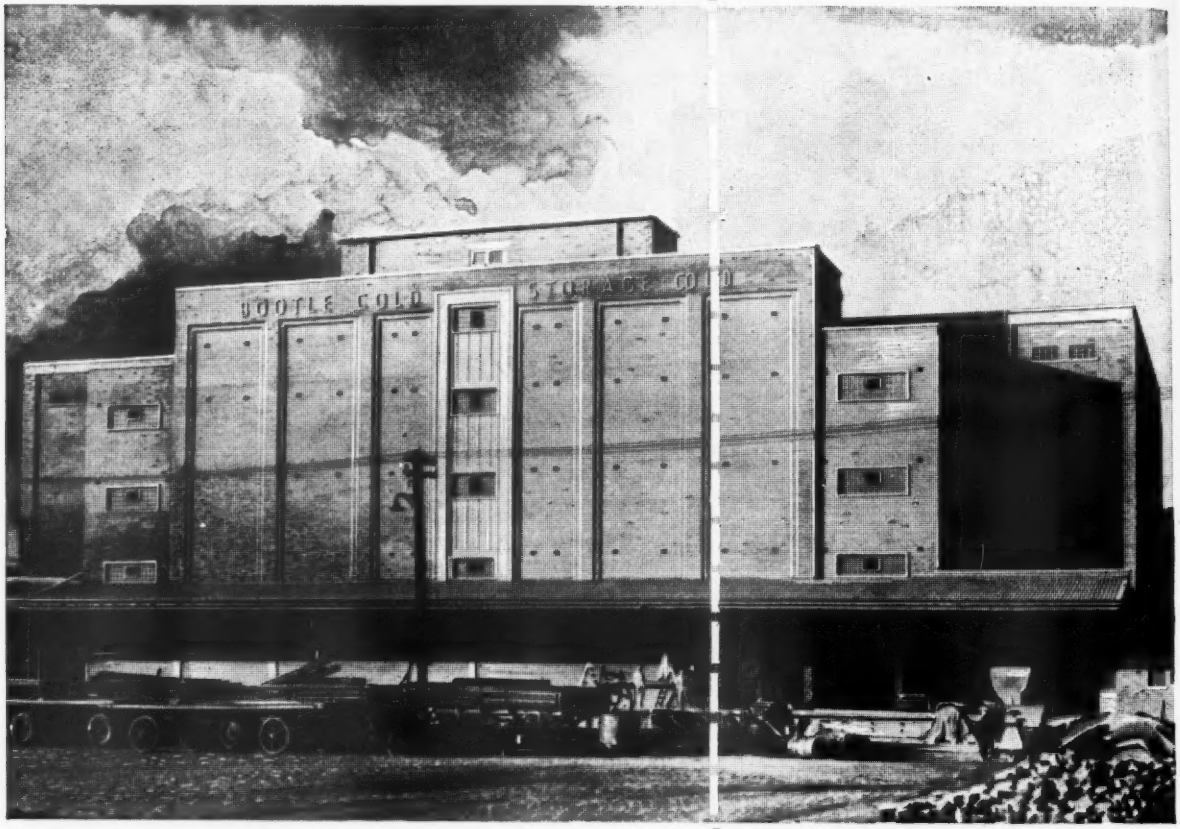
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THE DORMAN LONG LINTEL has only to be placed into position over the head of the opening by the bricklayer, and without delay the work carries on.

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DORMAN LONG



CANADA STORES, LIVERPOOL

by courtesy of the Bootle Cold Storage Co. Ltd.

Architects: *Messrs. Montagu Evans and Son.*



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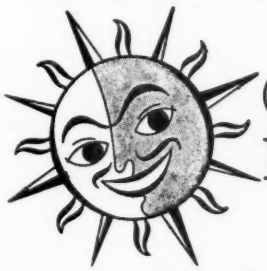
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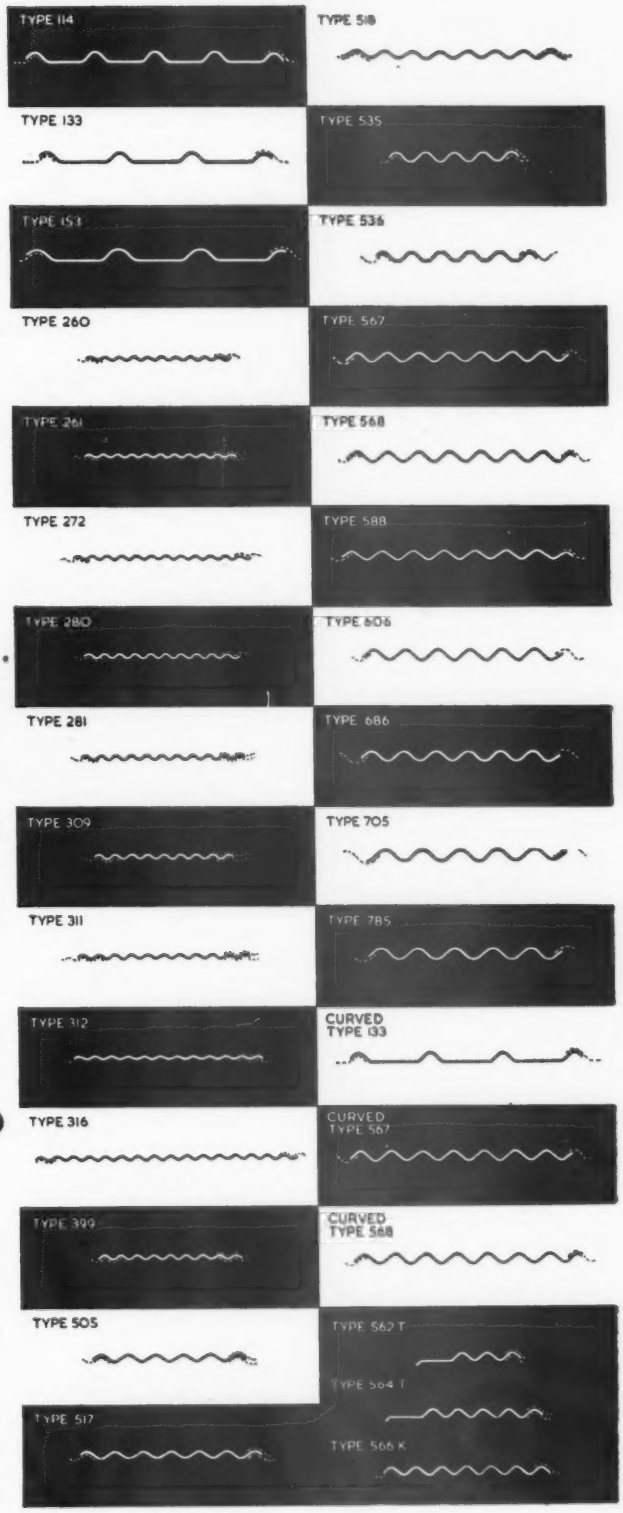
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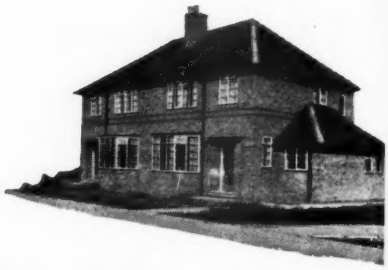
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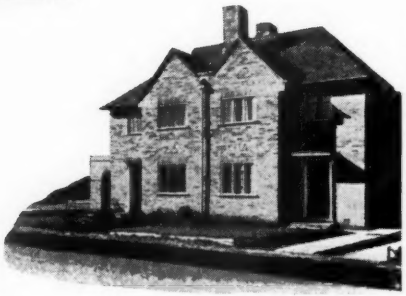


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JULY 1954

349 Council Election Results: Editorial
353 Award of Housing Medals 1954
361 General Meeting: Discussion on Building Bye-Laws
366 Architectural Journalism—H. L. Childe
367 John Wood The Elder, of Bath—Walter Ison
370 King George VI Hospital, Gibraltar
372 Sound Insulation in Houses and Flats—P. H. Parkin and E. F. Stacy
376 Architectural Competitions
377 Practice Notes
378 Franco British Union of Architects—25th Annual General Meeting
379 Architects' Benevolent Society—Annual General Meeting
380 Book Reviews
381 Review of Construction and Materials
383 Correspondence
384 Notes from the Minutes of the Council
384 Notes and Notices
387 Membership Lists
390 Obituaries
392 Members' Column

Council Election Results

Report to the Chairman of the General Meeting, Tuesday 15 June 1954

The Scrutineers appointed to count the votes for the election of the Council for the Session 1954–1955 *beg to report as follows:*

4,733 *valid envelopes were received—*765 *from Fellows,* 3,366 *from Associates and* 602 *from Licentiates.*

In addition 89 *envelopes were received which were invalid* (8 *unsigned,* 34 *unstamped,* 47 *too late*).

The result of the election is as follows:

COUNCIL 1954–1955

President

CHARLES HERBERT ASLIN (Hertford) (unopposed)

Past-Presidents

SIR HOWARD ROBERTSON (unopposed)
SIR PERCY EDWARD THOMAS (Cardiff) (unopposed)

Members of Council

Elected		*Votes*
1.	PROFESSOR SIR WILLIAM GRAHAM HOLFORD	2,612
2.	HON. LIONEL GORDON BALIOL BRETT	1,979
3.	CECIL GEORGE STILLMAN	1,890
4.	RICHARD HERBERT SHEPPARD	1,812
5.	DR. RONALD BRADBURY	1,544
6.	LEONARD CECIL HOWITT	1,530

Not Elected		*Votes*
7.	ANTHONY MERLOTT CHITTY	1,473
8.	RODERICK EUSTACE ENTHOVEN	1,345
9.	HAROLD CONOLLY	1,315
10.	ALDWYN DOUGLAS JONES	1,152
11.	THOMAS CECIL HOWITT	1,094
12.	PHILIP GARLAND FAIRHURST	930
13.	ROLF HELLBERG	797
14.	CLIFFORD EWART CULPIN	740
15.	FRANCIS JAMES MASSEY ORMROD	670
16.	THOMAS EUGENE NORTH	571
17.	JOHN RALPH EDWARDS	515
	NOEL PYMAN	515
19.	ALEXANDER ROBERT FORDYCE ANDERSON	463
20.	WILLIAM ARTHUR RUTTER	452
21.	TOM WILLIAM HAIRD	414
22.	WALTER WILLIAM FISK	412
23.	ERNEST BRANDER MUSMAN	404
24.	ALEXANDER FREDERICK BERENBRUCK ANDERSON	350
25.	FRANK HERIOT RISDON	325

4,715 Voting Papers were received of which 10 were invalid.

Associate Members of Council

Elected		*Votes*
1.	PROFESSOR ROBERT HOGG MATTHEW	2,588
2.	ERIC BEDFORD	1,377
3.	WILLIAM ALEXANDER ALLEN	1,358

Not Elected		*Votes*
4.	TOM MELLOR	1,104
5.	NORMAN PERCY THOMAS	914
6.	SIDNEY EDWARD THOMAS CUSDIN	863
7.	DR. FREDERICK FRANCIS CHARLES CURTIS	850
8.	LESLIE HUGH WILSON	722
9.	WILLIAM DANIEL LACEY	617
10.	JAMES THOMAS CASTLE	591
11.	JAMES GORDON WOOLLATT	587
12.	ANTHONY DREW-EDWARDS	465
13.	DOUGLAS WILLERTON RICHARDSON	425
14.	STEPHEN HAYWOOD STATHAM	226

4,661 Voting Papers were received of which 9 were invalid.

Licentiate Member of Council

Elected		*Votes*
1.	STANLEY VINCENT GOODMAN	1,649

Not Elected		*Votes*
2.	ALLAN WILLIAM VINCENT	931
3.	DUDLEY WATKIN JOEL	879

3,468 Voting Papers were received of which 9 were invalid.

Representatives of Allied Societies in the United Kingdom or the Republic of Ireland

(1) *Six Representatives from the Northern Province of England*

PROFESSOR WILFRID BYTHELL EDWARDS [F] (Northern Architectural Association)
GILBERT BURDETT HOWCROFT [F] (Manchester Society of Architects)

WILLIAM HARROWER GLEN DOBIE [A] (Liverpool Architectural Society)
ALLANSON HICK [F] (York and East Yorkshire Architectural Society)
NORMAN HAROLD FOWLER [F] (West Yorkshire Society of Architects)
HARRY ARMITAGE HICKSON [F] (Sheffield, South Yorkshire and District Society of Architects and Surveyors)

(2) *Five Representatives from the Midland Province of England*
STANSFELD THOMAS WALKER [F] (Birmingham and Five Counties Architectural Association)
CLEMENT COPELAND OGDEN [F] (Leicestershire and Rutland Society of Architects)
HAROLD DOUGLAS WILLIAMS [A] (Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects)
FREDERICK HAMER CROSSLEY [F] (Nottingham, Derby and Lincoln Society of Architects)
BERNARD WILLIAM JAMES OLLEY [A] (East Anglian Society of Architects)

(3) *Six Representatives from the Southern Province of England*
JOHN VYVYAN SALISBURY [F] (Devon and Cornwall Society of Architects)
One representative to be nominated by the Wessex Federal Society of Architects
DAVID BOOTH [F] (Berks, Bucks and Oxon Architectural Association)
JACK BERNARD BRANDT [F] (Hampshire and Isle of Wight Architectural Association)
HAROLD MILESON [F] (Essex, Cambridge and Hertfordshire Society of Architects)
GRAHAM CRUMP [F] (South-Eastern Society of Architects)

(4) *Four Representatives of Allied Societies in Scotland nominated by the Council of the Royal Incorporation of Architects in Scotland*
THOMAS SMITH CORDINER [F] (Glasgow)
WILLIAM ARCHIBALD PARK JACK [F] (Glasgow)
LESLIE GRAHAME MACDOUGALL [F] (Edinburgh)
THOMAS WALLER MARWICK [F] (Edinburgh)

(5) *One Representative of Allied Societies in Wales*
LAWFORD RAYMOND GOWER [F] (South Wales Institute of Architects)

(6) *Two Representatives of Allied Societies in Ireland*
LIAM PATRICK TIERNEY [A] (Royal Institute of the Architects of Ireland)
One representative to be nominated by the Royal Society of Ulster Architects

Representatives of Societies in Alliance with the Royal Institute Overseas
ROBERT SCHOFIELD MORRIS [F] (The Royal Architectural Institute of Canada)
THOMAS EDWARD SCOTT [F] (Representative in the United Kingdom)
To be nominated (The Royal Australian Institute of Architects)
ANDREW GRAHAM HENDERSON [F] (Representative in the United Kingdom)
JACK IAN KING [F] (The New Zealand Institute of Architects)
REGINALD HAROLD UREN [F] (Representative in the United Kingdom)
To be nominated (The Institute of South African Architects)
To be nominated (Representative in the United Kingdom)
MAHADEO KRISHNAJI JADHAV [F] (The Indian Institute of Architects)
STUART BENTLEY [F] (Representative in the United Kingdom)

Representative of the Architectural Association (London)
BRYAN PERCY WESTWOOD [F]

Representative of the Association of Building Technicians
KENNETH JOHN CAMPBELL [A]

Chairman of the Board of Architectural Education
PHILIP GARFORTH FREEMAN [F]

Chairman of the R.I.B.A. Registration Committee
HOWARD VICARS LOBB [F]

Two Representatives of the R.I.B.A. Salaried and Official Architects' Committee
To be nominated

Chairman of the R.I.B.A. Allied Societies' Conference
FREDERICK CHARLES SAXON [F] (Chester)

Election of Two Honorary Auditors
ROBERT OSWALD FOSTER [F]
EDWARD DOUGLAS LYONS [A]

Scrutineers

D. MURRAY EVANS	RONALD HARDY
SIDNEY H. FISK	F. A. M. SELLEY
JOHN J. ADAMS	F. STEVEN ALEXANDER
G. H. FIELDER	D. A. W. LOVEJOY
E. TOM SARGENT	JOHN A. WHITTAKER
NORMAN RIX	ARTHUR J. NORCLIFFE
E. H. FIRMIN	M. C. GRAY
MAURICE RUSSELL	GORDON PEARSON
W. A. SHERRINGTON	D. S. PEARCE
THOMAS SIBTHORP	

ERNEST G. ALLEN, *Chairman*

10 June 1954

R.I.B.A. Officers 1954–55

At the Meeting of the Council held on 6 July, Mr. E. D. Jefferiss Mathews, O.B.E. (London), Mr. S. Rowland Pierce (London) and Mr. Basil Spence, O.B.E., A.R.A., A.R.S.A. (Edinburgh), were appointed Vice-Presidents. Mr. F. C. Saxon, M.C. (Chester), Chairman of the Allied Societies' Conference, is also a Vice-President. Mr. Kenneth M. B. Cross, M.A. (London), was re-appointed Hon. Secretary and Mr. Thomas E. Scott, C.B.E. (London), was re-appointed Hon. Treasurer.

Birthday Honours List

Knights Bachelor. Howard Robertson, M.C., A.R.A., President, R.I.B.A. Arthur George Stephenson, C.M.G. [*F*]. Lieut.-Col. Percy Mirehouse Hope, O.B.E. [*L*].

C.B.E. (*Civil*). S. A. W. Johnson-Marshall [*A*], Chief Architect, Ministry of Education. G. E. P. Jackson, O.B.E. [*A*] (Foreign Office).

O.B.E. (*Civil*). H. F. Billimoria [*F*], Chief Architect, P.W.D., Ceylon. E. E. Hall [*L*], Senior Housing Inspector, Ministry of Housing and Local Government. E. Reily [*A*], Senior Architect, Ministry of Finance, Northern Ireland. Raymond J. Ward [*L*].

M.B.E. R. W. Wardill [*A*], Ministry of Works. Edwin Pallett [*L*] (Southern Rhodesia).

Greek Honour for Member

Mr. Bernard Matthews [*F*], Honorary Consul General of Greece at Calcutta, has been given permission by Her Majesty The Queen to wear the honour conferred upon him by the King of Greece, namely the Order of George I Decoration of Gold Cross.

Sir Howard Robertson

At the beginning of the General Meeting on 15 June, Mr. Kenneth M. B. Cross, Hon. Secretary R.I.B.A., said: 'I am sure you will wish me, on your behalf, to offer our sincere congratulations to our President on the honour of Knighthood which has been conferred upon him'. The proposal was received with acclamation and the President briefly expressed his thanks.

Part-Time Official Appointments

The attention of the Royal Institute has been drawn to an instance in which a local authority has advertised an appointment for an architect in private practice to act as architect to the local authority for all purposes for a fixed annual remuneration, irrespective of the amount of work to be undertaken, all of which the architect would be required to do in his own office. Such a contract is undesirable, since it involves the architect in carrying out work without any relation to the R.I.B.A. Scale of Professional Charges, and circumstances may well arise in which the architect might render himself liable to disciplinary action for failing to uphold the Scale.

In considering the offer of any such appointments, members in private practice should be careful to see that the scale of remuneration is based on a fixed annual consultant's retaining fee, plus the appropriate scale fees for any work he may be required to carry out.

R.I.B.A. Conference on the Design of Health Buildings

Applications for tickets to the Conference on the Design of Health Buildings are being received already in large numbers. Members who wish to attend should therefore apply in good time. Tickets are 10*s*. each which includes morning coffee and tea on both days and advance copies of the Conference papers. Applications should be addressed to the Secretary, R.I.B.A., envelopes being marked 'Hospitals Conference' in the top left-hand corner and the remittance enclosed.

The Conference, which is being arranged by the R.I.B.A. at the suggestion of the Hospitals Committee, is to be held on Thursday 21 and Friday 22 October and will be opened by the Minister of Health, the Right Hon. Iain Macleod, M.P. The full programme was published in the June JOURNAL.

The Joint Consultative Committee

At the first meeting in London on Friday 18 June of the newly constituted Joint Consultative Committee of Architects, Quantity Surveyors and Builders, formed to meet recommendations contained in the recently published Report of the Joint Committee on Tendering Procedure, Mr. G. W. Grosvenor, of Bath, President of the National Federation of Building Trades Employers, was elected Chairman.

John Wood the Elder

The bicentenary of John Wood the Elder was fittingly celebrated at the recent Bath Assembly by an exhibition, arranged by the Bath Group of Architects, and by a luncheon. We publish in this JOURNAL an appreciation of John Wood by Mr. Walter Ison, the leading authority on the history and architecture of Bath. Queen Square, a photograph of which is reproduced on the cover, is part of the scheme designed by Wood which includes the Circus and Crescent. He himself lived in the central house of the block shown in the photograph and Jane Austen lived in No. 13.

R.I.B.A. Library Group

At the Annual General Meeting held on 28 June, Mr. John Summerson, C.B.E. [*A*], was elected Chairman, Mr. W. H. Allen [*A*] was re-elected Honorary Treasurer, Mr. Kenneth S. Mills [*A*] was re-elected Honorary Secretary and Mr. H. A. N. Brockman [*L*] and Mr. Patrick McNeil [*A*] were re-elected committee members.

Appointment of Assistant Secretary R.I.B.A.



The Council have appointed Mr. Derek R. Perrey as Assistant Secretary R.I.B.A. He is to be responsible, under the direction of the Secretary R.I.B.A., for matters connected with the newly formed Joint Consultative Committee of Architects, Quantity Surveyors and Builders. Mr. Perrey will also take over responsibility for the Royal Institute's share of the Joint Contracts Tribunal.

Mr. Perrey was born at Sydenham in 1927 and educated at St. Dunstan's College, Catford, and New College, Oxford. At Oxford he read English and law and obtained a B.A. degree in jurisprudence. He qualified as a solicitor in May 1954. He served in the Royal Marines Commando at Malta and Hong Kong and he also qualified in 1944 as a Merchant Navy radio officer. At Oxford he obtained his college colours for rowing.

Building Research Trials

In laboratory building research work it is difficult to reproduce exactly the conditions that will disclose themselves on the actual site and there is need for full-scale trials under working conditions. To this end the National Federation of Building Trades Employers have with enthusiasm agreed to work in close collaboration with the Building Research Station to investigate certain practical points of detail that have arisen in the course of the Station's research work.

A sub-committee of the Federation will select members able and willing to carry out the experiments and will act as liaison between the B.R.S. and the Federation members. The results of the experiments will be made generally available.

Suggested possible subjects for full-scale trial include air-entrained mortars for rendering; zinc oxychloride treatments for walls infected with dry rot; lime-tar damp-proof courses for solid ground floors, and the construction of houses of unrendered lightweight concrete blocks.

While the arrangement in each case will be between B.R.S. and the contractor, the consent of the architect will have to be obtained. This no doubt will always be forthcoming because this research work is of value to the whole industry.

Defeating Decrepitude

On 16 June the Minister of Housing and Local Government, the Right Hon. Harold Macmillan, M.P., opened four demonstration houses in Holles Street, London, as 'a practical demonstration of one of the most important aspects of our housing policy in 1954—the conversion and improvement of our older houses', those, that is, which are substantially sound but lack the amenities now accepted as normal. The demonstration houses are 'mock-up' in brick-faced timber framing and are typical of the early 19th century 3-storey terrace houses that exist in London.

One of the Holles Street houses represents such a house as it would be found today if unaltered, and another has not been changed structurally but has been fitted up with modern appliances. The two remaining houses are perhaps most interesting as by forming openings through the party wall they have been converted horizontally into three self-contained flats, the unwanted staircase space in one house being used to form bathrooms.

The Minister hopes that local authorities and property owners will visit this demonstration to see what can be done in this field, for which improvement grants are available. The houses will be on view, free, until about the end of August.

The Royal Fine Art Commission

The report for 1953 of the Royal Fine Art Commission has been published. It is only occasionally that the work of the Commission is brought to public notice, usually in connection with projects of special interest, and those who may think that the activities of the Commission have been confined to such projects will be surprised to read the list of matters which were before them in 1953.

Forty-seven matters are listed under the heading of planning and amenities, 15 under building and amenities, 8 under churches, 23 under civic buildings, 42 under services, 20 under bridges and 5 under memorials.

When the Commission were set up in May 1924 the terms of reference were 'to enquire into such questions of public amenity or of artistic importance as may be referred to them from time to time by any of our Departments of State' and 'to give advice on similar questions when so requested by public or quasi-public bodies'. In 1933 the powers of the Commission were enlarged to permit them to call the attention of such departments and bodies to projects likely to affect amenities of a national or public character, and in 1946 the terms of reference were further extended to allow the Commission to call before them persons likely to assist them and to inspect such places as they may deem it expedient to inspect for the more effectual carrying out of the aforesaid purposes.

The Commission note with concern the low architectural standards shown in much of the work of reconstruction now taking place in central urban areas, and are even more concerned over the new street lighting, stating that as the steel situation has been eased and improved types of standard have been developed it should seldom be necessary any longer to make use of the heavier concrete columns and brackets that were introduced immediately after the war.

Tropical Architecture

The Architectural Association have set up a Department of Tropical Architecture under the direction of Mr. E. Maxwell Fry, C.B.E. [*F*]. The course is of six months' duration and starts in October. It is primarily postgraduate but is open to students in their last year of training. The A.A. Council have got together a team of lecturers and specialists, most of whom have first-hand experience of building in the tropics. The course covers types of tropical climate, tropical community traditions, tropical living habits, the effect of climate on design and construction, planning, materials, disease prevention, economic problems, special types of tropical building and other matters. The fee for the course, which is of two terms, is £80, plus membership fee of the Association. A Certificate of Study will be issued to those who complete the course satisfactorily. For the first session three scholarships of £50 each have been made available by Matthew Hall and Co. Ltd.

With the development of Colonial territories which is now proceeding, the demand for architects skilled in tropical building is growing rapidly. The success of the Conference on Tropical Architecture held at University College, London, in March 1953 showed how this demand is resulting in the building up of a body of specialised knowledge of a subject which has hitherto been neglected except by a few architects.

Library Closing in August

Following the practice of recent years, the Reference Library will be closed throughout August, although the Loan Library will be open on Mondays to Fridays inclusive from 12.0 noon to 2.0 p.m., and on Saturdays from 12.0 noon to 1.0 p.m. All sections of the Library will be open as usual from 1 September, but will close at 2.0 p.m. on Saturdays during September. From the beginning of October and throughout the remainder of the session, the Library will be open on Saturdays until 5.0 p.m. (Mondays to Fridays 7.0 p.m.).

Composition of Subscriptions for Life Membership

The Council have decided to terminate the scheme of Composition of Subscriptions for Life Membership as from the 6 July 1954.

From that date no further applications for composition will be accepted, but those members who have already compounded for life membership as Associates or Licentiates may still compound for life membership as Fellows if and when proceeding to the Fellowship on the terms and conditions laid down in the scheme which is now to be discontinued.

Competition for Sculpture

The Trades Union Congress have announced a competition for two separate pieces or groups of sculpture for their new Memorial Building now being built in Great Russell Street, W.1, and for which the architect is Mr. David du R. Aberdeen [*F*]. Two awards of £1,000 will go to the authors of the designs placed first and there will be further awards of £500 and £250 for the second and third designs in each class.

One piece, which is to commemorate trade unionists who lost their lives in the two world wars, will be placed in the courtyard at the foot of the Memorial Wall; the other, to be placed at the main entrance, is to epitomise the trade union movement as a whole.

Conditions can be obtained from the General Secretary, T.U.C., Smith Square, S.W.1, on a deposit of £1.

Keeping Harlow Tidy

The Harlow Development Corporation have launched a new children's organisation, the Park and Forest Rangers, with the dual aim of preserving the trees, streams and wild life in the new town and of encouraging the children to make full use of the playgrounds, playing fields and woodlands. The first President is Mr. Peter Scott, the naturalist.

The idea grew from the first 'adventure' playground in Harlow which was run by a children's committee. Children in the Harlow schools wrote their own 'country code' which has formed the basis of a booklet *Out of Doors*, a copy of which is issued to each child. The booklet contains some illustrated 'don'ts' and a list of places for playing in, what they contain and what children can do there. Issued with it is a membership and promise form. Children making the promise and paying a membership fee of 3*d.* receive a buttonhole badge and a certificate embodying the town Coat of Arms. The children have proved to be so keen on the scheme that some even paid their subscriptions before it was launched.

This scheme, of which the basic idea is to get the children to take pride in their new town, seems worthy of a more general application.

Leverhulme Research Award

A research grant to study 'The development of new methods for co-ordinating relationships between architect, client and builder' has been awarded jointly to Mr. E. Benroy [*A*], Mr. H. Elder [*F*] and Mr. E. de Pierro [*A*] by the Leverhulme Research Awards.

The Work of the Northern Ireland Housing Trust

The Trust have pointed out to us that the implication of the last two paragraphs of the article on the work of the Trust published in the May JOURNAL is that the Trust will undertake slum clearance in Belfast. This is not correct. The Trust is responsible for housing in rural and urban areas outside Belfast, slum clearance in Belfast being the responsibility of the Belfast Corporation; who have already prepared plans and schemes for slum clearance ready for examination by the Ministry of Health and Local Government of Northern Ireland, who are expected shortly to obtain legislation in the Northern Ireland Parliament similar to that recently passed at Westminster.



Kingsclere and Whitchurch R.D.C. E. D. Chick, designer. Powell and Moya [*AA*], consulting architects. Holland & Hannen and Cubitts, Builders

Award of Housing Medals 1954

The awards made by the Minister of Housing and Local Government on the recommendation of the Regional Awards Committees for the best housing schemes submitted for adjudication in 1954 *and completed since the end of the war were presented at a meeting held at the R.I.B.A. on Wednesday* 30 *June, the President of the R.I.B.A., Sir Howard Robertson, M.C., A.R.A., S.A.D.G., in the Chair. An address was given by Mr. A. E. Marples, M.P., Parliamentary Secretary, Ministry of Housing and Local Government, and the awards were presented by Mr. S. F. Wilkinson, C.B., Under-Secretary, Ministry of Housing and Local Government.*

The President: It is with great distress that we heard that Mr. Harold Macmillan, the Minister of Housing and Local Government, could not come here today owing to an unavoidable clash of duties, but it is a very great pleasure to us that Mr. Ernest Marples has come to present the awards. He is, as you know, Parliamentary Secretary to the Ministry, and I do not think that the presentation of the awards and the remarks which I hope he will find time to make could be in better hands or a better mouth.

There is nothing more for me to say, except to remind those who are not aware of what this award is that the Housing Medals are not awarded, I understand, for architectural quality alone, but take into consideration the economics of layout and of structure. I believe that there has been a change this year, and the award has been open to houses completed since the end of the war, provided that they have not been submitted previously. I also understand that the Regional Awards Committees, the juries, consist of nominees of the R.I.B.A., of the associations of local authorities, of the Federation of Registered House Builders and last, but by no means least, of the Ministry of Housing and Local Government.

Mr. A. E. Marples, M.P., Parliamentary Secretary, Ministry of Housing and Local Government: My Minister, Mr. Harold Macmillan, has asked me to express to you his regret at not being able to be present and his hope that I shall prove a worthy substitute and an acceptable one. I regret also that I have to leave at 3.20, because by the orders of the Chief Whip I have to be at the House of Commons at 3.30. While I regret this, it is fortunate for you, because this would have been a heaven-sent opportunity to inflict upon you some of my personal idiosyncrasies with regard to architecture, and with relish I was looking forward to that!

Before I make some remarks about the competition proper, I should like to make one personal observation, and that is to congratulate Sir Howard Robertson upon his knighthood. I know of no architect more worthy of that honour. We have never had a cross word personally—only in correspondence in the newspapers. I have a great personal regard for his professional knowledge, and much appreciate his kindness and never-failing courtesy to myself.

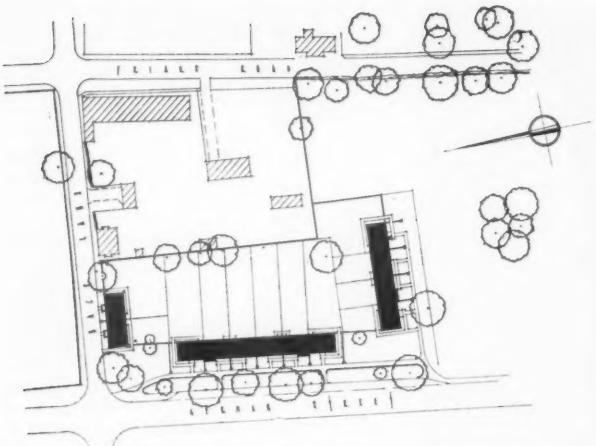
Architecture is very difficult. It is a science as well as an art. It is getting more and more difficult as the years go on and as the duties of the architect become more complicated. People must recognise, when they criticise architects, that that is the background against which they make the criticism.

Travelling about the country, as I have to do in my present position, I have been struck by the wide gulf which exists between the best and the worst architecture in the municipal field, which is the field with which my Ministry is concerned. The best is superlative, and the worst is terrible. I have seen some horrible examples of municipal architecture, and generations to come will curse the particular councils responsible. I have also seen some magnificent schemes





Above: Dunmow R.D.C. Thaxted. Gerald Lacoste, M.B.E. [*F*]. T. Harris and Sons Ltd., Builders
Right: City of Plymouth, Cecil Street. H. J. W. Stirling [*A*], City Architect. Hill and Lang, Builders





Battle R.D.C. Scheme at Winchelsea. A. H. Neave [*F*]. John Perigoe and Son, Builders. Plan above: general view on right

and layouts of which anybody could be proud and of which they will still be proud in fifty years' time. I should like to see that gap between the worst and the best narrowed. Its existence is astonishing, regrettable and wholly unnecessary, because of the expert advice which is always available nowadays.

We must all have an open mind about architecture. The life of a human being is complicated and varied. He has certain ideas in his twenties, different ideas in his thirties, different again in his forties, and so on; for biological reasons we change our minds as we advance. So do nations, and so do art and architecture. New materials and methods come in, all of which must be absorbed.

Architecture should reveal function. It is no good building a power station like a cathedral or a cathedral like a power station. The tendency to hide a power station is wrong; a power station is a thing of beauty in the 20th century, and should look what it is. I do not mean to say that aesthetics should be ignored, but I believe that the function comes first and that the architect must take it into account.

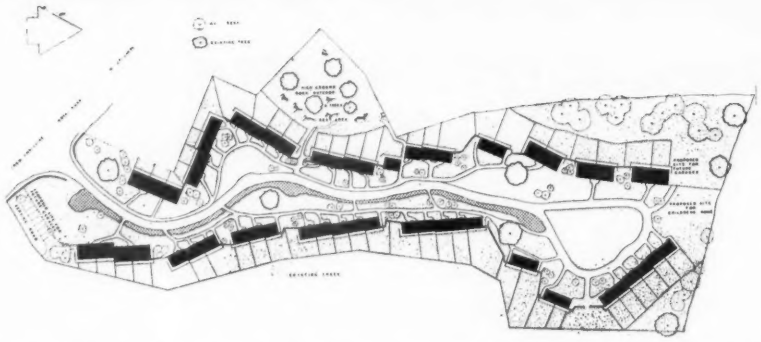
With regard to the competition itself, the work of the builders has been recognised by diploma awards this year as well as the work of the architects and of the local authority or other body responsible. I think that that is a gap which ought to be filled, and I am delighted that the builders have now been included in these awards. I am glad to welcome the representatives of the successful building firms, because they are active partners with the architect. A bad firm of builders and a good architect do not make an effective combination, any more than a bad architect and a good firm of builders.

I should like to offer special congratulations to those people who seem to make a habit of winning prizes every year. I con-congratulate Messrs. Needham, Thorp and White on their fourth win out of five competitions. As winners for the third time we have Messrs. W. Dixon & Sons and Mr. Gibson, the Architect of Coventry. Mr. Sheppard Fidler, of Crawley, Mr. Gibberd, of Harlow, and the Hexham Rural District Council are here for the second time, as are Messrs. Chick, Powell & Moya and Mr. Foulkes, and I particularly congratulate Mr. Foulkes for keeping the Welsh flag flying.

There were 44 more entries this year than last and, as Sir Howard has said, the field was thrown open this time to all



The Lakes U.D.C. Jennings and Gill [*L/A*]. Norman Jackson, Builder. Plan below



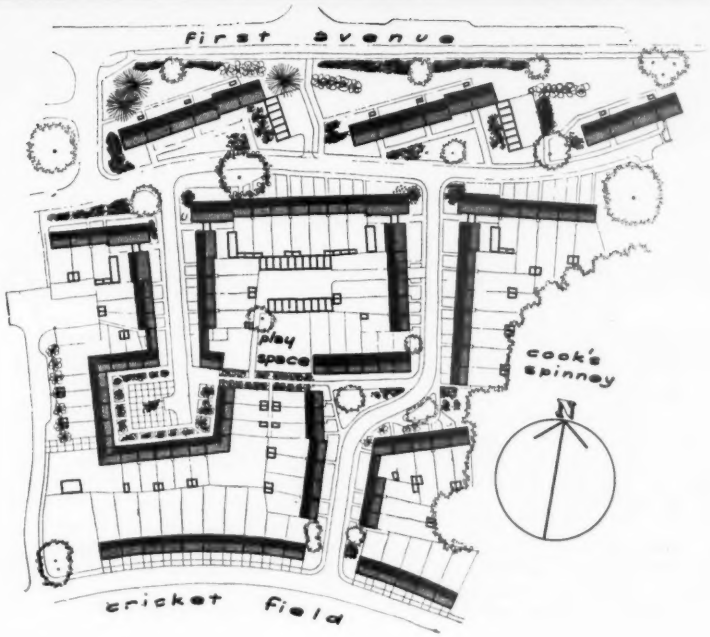


Nidderdale R.D.C. Hampsthwaite. Needham, Thorp and White [*FF/A*]. A. Stephenson, Builder.



Swanage U.D.C. A. E. Geens [*F*]. Jefferson Pond and J. H. Wilson & Sons Ltd., Builders





schemes completed since the war which have not previously been submitted. The number of entries shows a healthy and very gratifying increase of interest. Generally speaking, this year the entries display a distinct advance in imaginative treatment of layout, coupled with compact planning. I think that this year the schemes were better in layout than any I have seen, and that is a good thing, particularly in view of the fact that we are short of agricultural land and must produce as much food as possible at home, so that it is gratifying to find that we can still get good layouts which are nevertheless compact.

A word of congratulation is due to the London County Council. This year they have taken a very high place in the awards with a quite outstanding scheme at Wandsworth. This is the first occasion on which the London County Council have received an award, and I hope that the commendable interest which they have taken in design for the last few years will mean that they will take an ever-increasing part in this competition.

Amongst the other councils I should like to mention one or two. One of the awards goes for a scheme at Winchelsea, which is one of the most delightful places that I have ever seen, where they have been successful in infilling. I should also like to mention Cannington, in the area of the Bridgwater Rural District Council, and Greenbank, Ambleside, where the smaller authorities have managed to retain the character of a particular village largely by the use of indigenous materials and by seeing that the design harmonises with the countryside and with what was already there.

I have not mentioned everybody, but those who have not been mentioned must not think that there is any special reason for it. I now come to what I think—and so does the Minister—is the most unusual feature of the competition this year, and that is that the North Midland Region

Harlow Development Corporation. Frederick Gibberd, C.B.E. [*F*]. Kirk and Kirk, Builders





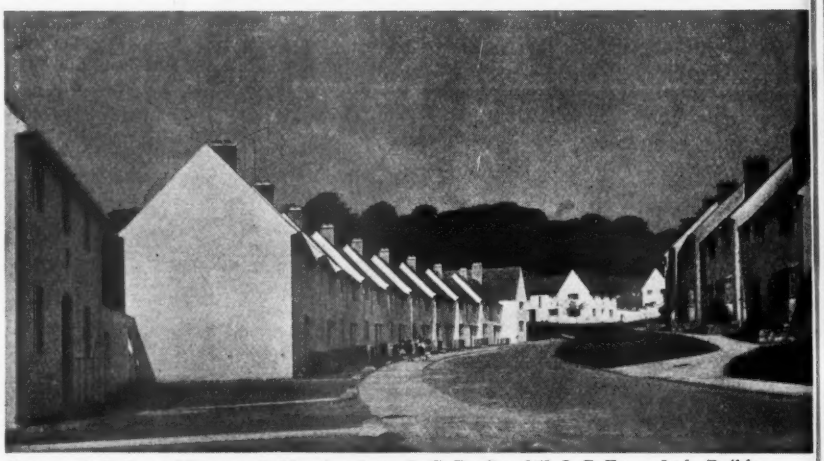
Above, Hexham R.D.C. Newbrough. W. Dixon and Son [*A/LL*]. J. H. Newman and Sons, Builders. Right, Tarvin R.D.C. Clutton. T. Pritchard, Registered Architect. Henry Jones & Sons, Builders

Awards Committee have not made any recommendation, and that was a unanimous decision. I think that that is a very refreshing breeze of courageous integrity which deserves commendation. In these competitions, it is only when we are honest about the merits of the entries that we shall get any real value out of them.

So far as these competitions are concerned, I think that in future the emphasis must first of all be on private enterprise. I have great admiration for the methods of construction adopted by private enterprise, for the way they collect and assemble materials and for the rhythm which they get in their operations on the site. But I have never been so great an admirer of their aesthetics. I hope and believe that in the future they will take good advice architecturally in order to create a higher standard of aesthetic development than they showed in the past. I am sure that they can do it. There is a real chance for them now, and we hope that they will play their part in entering future competitions.

We are going to have competitions for improvement and conversion. I think it is essential that the structurally sound houses which we possess shall be converted and improved, using really skilful architectural advice, especially when I think of some of the beautiful old houses which this will enable us to retain, enhancing and not destroying the character inherent in them. I hope that in these conversions both private enterprise and the local authorities will do what they can to see that they carry out the necessary operations with skill and efficiency. I hope you will visit our exhibition in Oxford Street which shows how old houses can be converted and criticise it in any way you like; we shall welcome criticism, especially if it is constructive.

I express thanks to the judges of this competition and the organisers, with thanks to the civil servants who have played no small part in this competition. I congratulate the winners and commiserate with the losers. Above all, I hope that the spirit of competition in architecture will blaze brighter in the future, now that we are leaving the bleak and difficult years through which we have passed since the war. I wish these competitions all success, and I am grateful to you for showing so much interest in them.



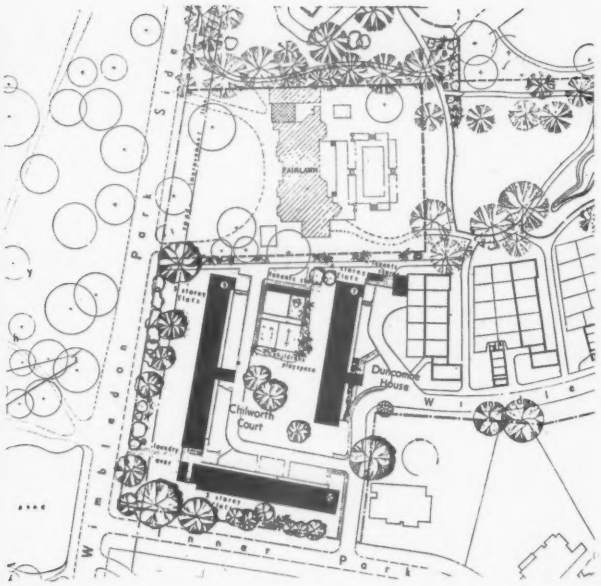
Beaumaris B.C., and Beaumaris Housing Assn. S. C. Foulkes [*F*]. J. C. Evans Ltd., Builders



Mr. Marples having left the meeting, Mr. S. F. Wilkinson, C.B., Under-Secretary, Ministry of Housing and Local Government, then presented the medals and diplomas.

Mr. Reginald Stamp, Chairman of the Housing Committee of the London County Council: I am sorry that Mr. Macmillan cannot be here today, because I had thought of making some facetious remarks following the issue yesterday of the White Paper on Housing Subsidies. In the Minister's absence, Mr. Marples has treated us to a





Left and above: L.C.C. Ackroyden Estate. J. L. Martin, M.A., Ph.D. [*F*]. Architect to the Council. Tersons Ltd., Builders





Left and above: Southall B.C. Bridge Hall. R. H. Uren [*F*]. General Housing Co. Ltd., Builders

very bright speech. Those who go to many meetings of professional associations know how possible it is to be bored at such gatherings as these, but Ernest Marples can always be relied on to make a bright speech. I am sorry for the circumstances which have compelled him to leave us today, because he is a hard worker. I am a member of the Central Housing Advisory Committee, and I find him and the Minister most helpful.

I think that I can say, on behalf both of the prizewinners and of the losers—the losers who, having tried, have won a moral victory—that we are most grateful for all the arrangements for this competition. A feature of it has been the recognition and the bringing in of the three partners in the team. That is a very pleasant part indeed of this annual event, to which we always look forward, because we all expect to win something some day.

I did wonder at one time whether our great authority—I say this with some trepidation in the presence of the architect of the Council, and of Mr. Forshaw, an ex-architect of the Council—were perhaps in their vast housing operations a museum of all the successes in architecture in housing, and perhaps also a museum of all the mistakes. We have sometimes wondered whether it was fair for a large authority such as our own even to compete, but we are still boys, even though we are a large authority, and we have got a kick out of winning an award on this occasion. I think it is a great incentive to all authorities, large and small, to be able to take part. It is a recognition—and I can say this as a layman—of the work that our officers are doing, because, like Mr. Marples, I am one of those who, with my Vice Chairman Mrs. Denington, have to decide on what schemes they will adopt.





Above: Norton U.D.C. F. Vaux [*F*]. F. and H. Calam, Builders. Right: Crawley Development Corporation. A. G. Sheppard Fidler, M.A. [*F*]. Carlton Contractors Ltd., Builders

Many architects here will have come before the critical eyes of Mrs. Denington and myself.

I have come across in recent times, as Mr. Marples has, a good deal of criticism of some municipal architecture. In going about the country we often hear the criticism that we do not want to bring down the level of a district by introducing municipal housing, and I have always been able to reply, based on my knowledge of what many authorities are doing and on what I have seen all over the country, that architects can, in the midst of beautiful natural amenities, actually enhance the beauties of nature by the introduction of good architecture. I have seen that happen all over the country. Even in London, where we have natural amenities, we have enhanced the district in which is situated the scheme which has won us an award by introducing some good architecture.

I should like, therefore, on behalf of everyone here, to thank the organisers of this competition through their representative, Mr. Marples, and through Mr. Wilkinson.

Lady Portal, Chairman of the Kingsclere and Whitchurch Housing Committee, seconding the vote of thanks, said: I do not think that I have ever before seconded a vote of thanks to two people who are absent, but that is our misfortune and our loss, and quite unavoidable. I had hoped that the Minister would be here today, but I was afraid that he would not, and that Mr. Marples should be here only for so short a time was sadder still.

I cannot add anything to what Mr. Stamp has said. It shows the diversity of authorities that Mr. Stamp, the Chairman of the Housing Committee of the L.C.C., and I, as the Chairman of the Housing Committee of a very small rural district, Kingsclere and Whitchurch, which is almost at the opposite pole of authorities, should be associated in this proposal, and I think it is delightful, and that both our authorities should have been successful in this competition.



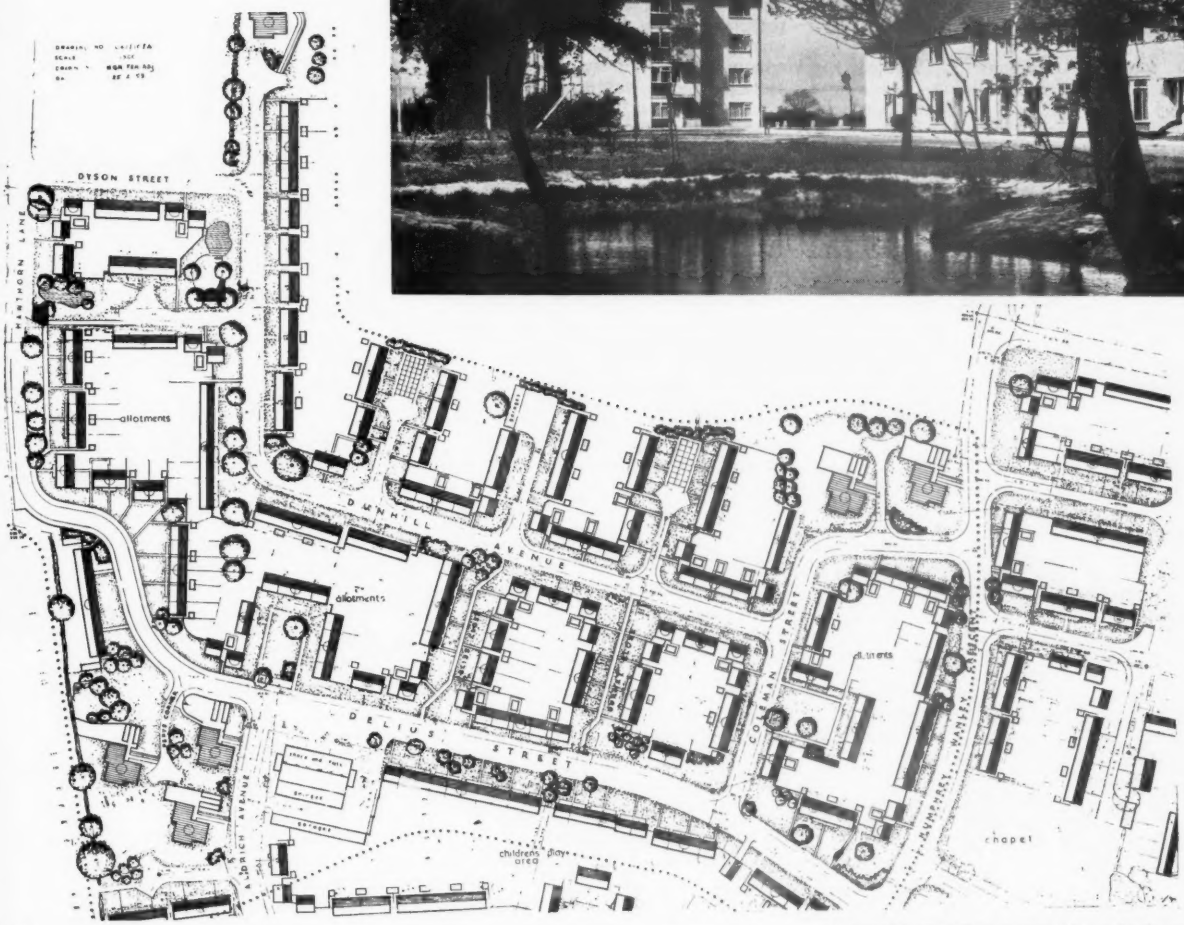
The Charities of Mayes, Hartley and Sutton, Ancoats. H. M. Fairhurst, M.A. [*A*], W. Gornall & Sons Ltd., Builders



Right: Shipston-on-Stour R.D.C. E. H. Earp [*L*]. W. T. Hicks Ltd., Builders

City of Coventry. Tile Hill North. D. E. E. Gibson, C.B.E., M.A. [*A*], City Architect. George Wimpey & Co. Ltd., Builders. Plan below.







I should also like to say that nobody was more surprised and delighted when I heard that we had won this award than I was. Although, with Mr. Stamp, I have the privilege of sitting on the Central Housing Advisory Committee, I can assure you that we have not the means of influencing anyone in our favour! I hope that our vote of thanks will be forwarded to both the Minister and Mr. Marples, and I should also like to express the thanks of the Kingsclere and Whitchurch District Council.

Bridgwater R.D.C., R. G. Nicholls [*F*]. H. W. Pollard and Sons Ltd., Builders

A Discussion on Building Bye-laws

At a General Meeting, 15 June 1954

The President in the Chair

The President: I am going to ask Mr. Richard A. Simons, of the Building Research Station, to introduce the subject. Mr. Simons has been engaged for a long time on Codes of Practice and Building Regulations.

Mr. Richard A. Simons: The subject for discussion tonight—building bye-laws—offers several different lines of approach, and in opening the discussion I have chosen one which seems to me to be best fitted for a gathering, and an occasion, such as this. To those of you whose main concern is with the design and erection of buildings in England, building bye-laws will mean either those of the London County Council or of local authorities outside London, and we can take it that the latter are represented by the Model Bye-laws for Buildings issued by the Ministry of Housing and Local Government for the guidance of those authorities. To review either of those codes would be a long and tedious business, and I am quite sure you would not thank me if I were to do it. Instead, I propose to look at building bye-laws in their fundamental relationship with the practice of architecture.

It is interesting to look at the examples of building regulations that have come down to us and to see how, in every age, they reflect the state of society they served, and the state of knowledge in that society. The earliest known example is contained in the Laws of Hammurabi, King of Babylon, and they date from about 2000 B.C. An extract, transcribed by Mr. R. F. Harper and recorded in the proceedings of the Brooklyn Engineers' Club in 1925, appeared in THE BUILDER of 15 December 1950; I will read part of it to you, for it is very interesting.

'If a builder builds a house for a man and do not make its construction firm, and the house which he has built collapse and cause the death of the owner of the house, the builder shall be put to death.

'If it cause the death of the son of the owner of the house, they shall put to death a son of the builder.

'If it cause the death of a slave of the owner of the house, he shall give the owner of the house a slave of equal value.

'If it destroy property, he shall restore whatever it destroyed; and, because he did not make the house which he built firm and it collapsed, he shall rebuild the house which collapsed at his own expense.'

That extract is interesting for the picture it gives us of a ruthless society, but for us tonight it has a particular interest, lying in the simplicity of its requirement. The legislator made no attempt to prescribe the manner in which a house should be built, neither did he concern himself with details such as the thicknesses of walls and the sizes of timbers; for knowledge of the how and why of building had not advanced very far and, no doubt, he did not know how to prescribe them. Instead, he was content merely to require that every house should adequately perform the only function which at that time it was expected to perform: it had to stand up.

Through subsequent ages each organised state had its own building standards, and its own ways of seeing that they were maintained. Passing over some 3,000 years or more, we come to our own country and its first well-known example, the ordinance of Henry Fitz Ailwin, Mayor of London, dated 1189. It has been called a town-planning act, but it would be more correct to describe it as a code of bye-laws relating to town-planning and the construction of buildings. It contained provisions applying to party walls, privies and ancient lights. The growth of cities, with buildings largely built of combustible materials huddled closely together within the close confines of the city walls, had added other essential functions, amongst them resistance to the spread of fire. Fitz Ailwin's ordinance applied only to the City of London; the provinces as yet had no written code, although it is likely that some of the larger towns may have borrowed the London one. Throughout the Middle Ages, and for long after, building was controlled by the townsfolk, who judged each case individually, in relation to local custom and what they considered fitting in the particular circumstances. They appear to have wielded considerable power, too, as in the case recorded by Mr. L. F. Salzman, where 'in the sixteenth century when a house was set up at Newport (Isle of Wight) without consulting the burgesses they insisted upon its being shifted'. Scotland retains an interesting survival of this system in the Dean of Guild Court, which to this day controls matters relating to building in her burghs.

The Restoration marks an era in British history; to that period has been ascribed the beginning of modern Britain. It was in the reign of Charles II that, in the words of the historian Arthur Bryant, 'across this land and its people, darkened by a generation of war and anarchy, broke the rays of a new dawn'—the dawn of the age of science. And it is significant that one of the pioneers of the new science should have been also one of our greatest architects.

Early in the period London suffered a dire calamity. Disastrous fires there had been before, but nothing had equalled this either in magnitude or in its ultimate effects upon architecture, effects which spread throughout Britain and which are still traceable in much of our architecture today, upon building techniques and building regulations. Following the Great Fire, Acts of Parliament for the rebuilding of the City were passed which clearly reflect the growth of knowledge of the technicalities of building. Their provisions were related to four distinct 'sorts' of buildings and contained requirements as to the number of storeys that each should have, their heights, the thicknesses of both external walls and party walls, the sizes of timbers and certain constructional details aimed at reducing fire risk. I will quote you some passages, which I have extracted from a quaint book by a contemporary writer, Joseph Moxon:

'And be it further Enacted, That the said Houses of the First and least sort of Building Fronting by Streets or Lanes, as aforesaid, shall be of two Stories high, besides Cellars and Garrats; That the Cellars thereof 6 Foot and an half high, if the Springs of Water hinder not; and the First Story be 9 Foot high from the Floor to the Seeling; and the second Story 9 Foot high from the Floor to the Seeling; that all Walls in Front and Reer as high as the first Story, be of the full thickness of the length of two Bricks, and thence upwards to the Garrats of the thickness of one brick and an half; and that the thickness of the Garrat Walls on the back part, be left to the Discretion of the Builder, so that the same be not less than the length of one Brick.'

The author adds, later on:

'Also, the same Act enjoins, That no Timber be laid within 12 Inches of the foreside of the Chimny Jambs; and that all Joysts on the back of any Chimny be laid with a Trimmer at six Inches distant from the back: Also, that no Timber be laid within the Tunnel of any Chimny. . . .'

You will see in those provisions the germ of some of the provisions of our present-day bye-laws, although in the course of time they have become much more complex, mainly as a result of attempts to bring them up to date with developments in building.

The 19th century was a period of great developments in many fields; its reforms are as well known as are the evils that gave birth to them. The concentration of industry in the towns and their rapid and uncontrolled growth as a result, the introduction of mechanical transport and the development of mechanical processes in the preparation of materials, progress in medical science and hygiene; all these and other factors had their effects upon building and began the transition from the traditional crafts, whose roots lay in the use of ready-to-hand materials by methods of working them which had evolved from the

materials themselves, into the varied and highly mechanised techniques of today.

It was a great period for legislation, too, and to it we owe our Local Government Acts, our Public Health Acts and others which provided the basis upon which is built our present system of control, with local authorities all over the country administering National Statutes or their own Local Acts, and making and administering their own bye-laws under powers given to them by Parliament. London remains to this day a law unto herself, with her own Building Acts under which she makes her own bye-laws, and which afford much greater flexibility in administration, so that new developments can find a much easier acceptance there than elsewhere.

Building bye-laws made by local authorities under specific powers given to them by Parliament first appeared in the 1850's; the first model for the guidance of local authorities was issued by the Local Government Board in 1877. The general pattern of earlier legislation, which had been formulated in accordance with London needs and practice, was followed. Requirements were primarily related to what had become 'traditional building'; walls of brick, sometimes perhaps faced with stone, upper floors and roofs of timber construction with now and again columns and beams of cast iron, and roofs covered with slates, tiles or lead. There was no provision for anything out of the ordinary, but at first that was hardly necessary.

Conditions, however, were changing, new ideas were coming to the fore and new materials, such as steel and reinforced concrete, were being used in building. The Local Government Board made great efforts to keep abreast of developments; their models were kept continually under review and were revised as new practices became established, but it was not so easy to keep the actual bye-laws of local authorities up to date. They soon came in for criticism on the score of their restrictiveness, either because they set a standard which, however desirable it might be in some districts, was too stringent for others, or because they did not permit the use of new ideas or better methods of building.

During the years following the First World War, the building industry was faced with conditions comparable to those of the last few years, a shortage of traditional materials, rising costs and a big leeway of building to make up, especially in the field of housing. It did then what it did again in the 1940's, turned to the development of new materials and new ways of building. Then scientific research entered the field of building. In 1921 the Department of Scientific and Industrial Research established its Building Research Station, an example followed since the last war in a number of other countries, so that now the Building Research Station is only one of many organisations which are daily adding to our knowledge of matters relating to building. And thus today we find ourselves in a new age, an age of scientific discovery and advancing knowledge. New ideas, in all spheres of building, follow one another with almost bewildering rapidity; the more successful to remain, the less successful to disappear almost as suddenly as they appeared.

As a result of all this the architect can adopt a new approach to the design of a building. He no longer needs to start, for example, from the hypothesis that the walls will be of brick or stone, whichever is customary in the particular locality, or, wishing perhaps to be a little different, of timber—provided that he is allowed to do it. Instead, he can decide first the functions the walls must perform, then cast around until he finds the form of construction that will best meet those functions and at the same time will be suitable in the particular circumstances and not be too costly for the job. He can do the same with the other parts of the building, its fittings and installations, until he finishes up with a building which itself satisfactorily fulfils its function.

The former practice of bringing bye-laws into line with developments after they have become accepted can no longer deal with such a situation; the time has come for a new conception of building control, based on the result that must be achieved instead of the manner of its achievement, so that controls are directly related to architectural practice. As long ago as 1936, when the Ministry of Health was revising its Model Building Bye-laws following the Public Health Act of that year, the Building Research Station suggested that bye-law requirements should be expressed in terms of performance instead of method of construction, and an attempt was made to do so, but only in a small way. Then, after the late war, when the time came once again to revise building bye-laws, further attempts were made both by the Ministry of Housing and Local Government and by the Department of Health for Scotland, this time to extend the principle to as many provisions of the bye-laws as possible.

The principle as it was developed for use in the present models involves three different kinds of bye-law, although not all of them have been used in every case. First, there is a bye-law expressed in purely functional terms, in such a way that its satisfaction is quite independent of the use of any particular materials, form of construction or method of design. An example of such a bye-law is, in the model of the Ministry of Housing and Local Government, the first part of the bye-law relating to load-bearing structures, which reads:

'The load-bearing structure of a building above the foundations shall be capable of safely sustaining and transmitting the dead load and imposed loads and the horizontal and inclined forces to which it may be subjected without exceeding the appropriate limits of stress for the materials of which it is constructed and without undue deflection.'

It is often said that there is nothing new under the sun. It is curious how we today, because our knowledge is so wide and our ways of building so varied, have turned again to the same method of expressing requirements for the control of building as were used by Hammurabi 4,000 years ago, for just the opposite reason, that his limited knowledge gave him no alternative.

If it is considered necessary, the functional bye-law is supported by others prescribing the basis of design that must be used to achieve the required standard of performance in satisfying the functional bye-law. The second part of the bye-law that I have already quoted is an example; it requires that loads shall be calculated in accordance with rules contained, for the sake of convenience, in a schedule to the Model. Other examples are the main provisions of that part of the same Model which relates to fire resistance; in this case they are expressed in terms of the combustibility or non-combustibility of materials and periods of fire resistance of elements of structure.

The third kind of bye-law is of a different nature altogether. It describes some (it is not exclusive) materials and forms of construction whose use, under appropriate conditions, will be deemed to satisfy bye-law requirements proper, which are contained in the functional bye-laws and the performance standards. These 'deemed-to-satisfy' bye-laws form, in effect, a rule-of-thumb code for the guidance of all who do not wish, or who have not the necessary knowledge, to use technical design methods; at the same time they provide a medium through which conditions for the use of particular materials or forms of construction can be imposed. Another feature of the 'deemed-to-satisfy' bye-law is that it provides the link between bye-laws and British Standards and Codes of Practice; many of these bye-laws accept materials that conform to a British Standard, and methods of design or construction that comply with a Code of Practice.

The principle, developed and applied as I have just described, represents a compromise between the two interests, each with very different points of view, which are most vitally concerned with bye-laws: the technical and the legal. Technically, the ideal is complete flexibility with a reasonable minimum standard, while the legal ideal is always absolute precision. The main difficulty, so far as the law is concerned, lies in prescribing, with sufficient precision, the 'reasonable minimum standard' in every case. Being a compromise, the application of the principle has some very important weaknesses, which can be summed up in the one word 'restrictiveness'.

Experience has already shown that, as soon as one introduces any sort of specific rule related in any way to current practice, the old bugbear will appear sooner or later. Performance standards are essentially related to current practice, and current practice is always changing, although often the change may be hardly perceptible. Only bye-laws expressed in purely functional terms can remain constant without the need for revision, and under them alone can a building be considered as a complete entity in relation to its site and to neighbouring buildings, both actual and potential,

which it is so very necessary to do under present-day conditions.

And so the problem remains yet to be solved: the reconciling of two apparently irreconcilable points of view. How it can be done, time will show; the first essential is clearly for the two interests to get together and co-operate wholeheartedly one with the other. Perhaps the law will unbend; and on that note I will close with yet another quotation, this time from an eminent lawyer of our own time, the late Lord Macmillan:

'Reform of procedure is always a ticklish business, for we grow accustomed to the paths we have long trodden, however tortuous, and vested interests are apt to grow up around them. But the task must be undertaken from time to time if the vehicles of law are to keep pace with the changing requirements of the age.'

Mr. C. S. White [*F*]: We have received from Mr. Simons a skilfully flavoured version of a subject which many of us hitherto have regarded rather like wet cabbage—horribly nourishing, but somewhat unpalatable. The study of building legislation is seldom approached with any vitality of mind, and as a very ordinary practising architect who merely tries to build imaginatively and sensibly and within the law, I am afraid I cannot contribute anything vivid or profound.

In taking part in this discussion, I should like to confine my remarks to the Model Bye-laws. In doing so, I am very conscious of my own limitations. The fact that my name appears in the front of the new document of the Model Bye-laws, as representing the Institute on the Advisory Committee, does not mean that I am an expert on building legislation. Had I cherished any illusions on this point, they would have been dispelled after the first meeting. I soon discovered how many factors, including legal ones, can influence or even eliminate a suggested revision of the Model.

A glance at the list of members (about 20 attended each meeting) indicates how wide the representation was—necessarily so. This broad approach, and the speed with which the Ministry decided to tackle the problem, has inevitably resulted in a document which is, in some respects, a compromise. The enthusiastic reformer is disappointed, whereas the cautious traditionalist, and perhaps, to some extent, the average country builder, may be apprehensive and wonder how and with what consistency some of the new wording will be interpreted by local authority officials.

Both these points of view—the point of view of the reformer, and of the experienced user up and down the country—are understandable, and no one would claim that the Model is perfect. But a serious attempt has been made to recognise, and permit the use of, materials and methods hitherto unrecognised, provided of course that they fulfil their functions adequately, and so extend the field of authorised building techniques to include reliable new ones. This is undoubtedly a step in the right direction, but much will depend on the way local bye-laws are brought into line with the Model, and particularly on the co-operation of officials who administer them.

I think that for a time we must expect conservatism and some hesitation, perhaps, on the part of both users and administrators, but as experience grows this should eventually give way to a more confident attitude. We must also expect and welcome—or the Ministry must—constructive suggestions whereby the Model can be improved.

Two principles appear to me to be of vital importance. The first is that reasonable flexibility should inspire the wording, interpretation and administration of all building legislation. The second is that it is the duty of all architects and other users, and of all local authority officials, to take an interest—a critical interest, if you like—in new developments and at least keep themselves informed.

Those who have not already done so should study the admirable paper by W. A. Allen and Edward Mills presented at the recent Conference at Torquay. This paper will, I hope, go far to enliven the lethargic and encourage the progressive. What is significant and hopeful is that over 150 delegates to that Conference were representatives of local authorities.

Mr. Simons has dealt with this somewhat dry subject with scholarship and freshness. The penalties for infringement in Babylonian times appear to us to be a little harsh. Not even the most pontifical amongst us would nowadays be able to sit back and watch with complete calm while the builder is put to death or otherwise uncharitably treated because of some technical shortcoming which, for all we know, might well be due to professional ineptitude.

I should like to pay tribute to Mr. Simons not only for his paper but, as I happen to know, for his valuable and thoughtful work on this problem long before he was a member of the Advisory Committee at the Ministry.

There is one final point. Mr. Simons said that under the London County Council bye-laws, the London County Council seem to afford a slightly greater flexibility in certain respects than was possible at present with the Model Bye-laws. I am wondering whether Mr. Simons means this to be rather general or simply specific, because in my experience it has been the other way round. For example, with regard to industrial buildings in the London area and the requirements for, say, the cladding of end gable walls which could be extended in the future, one must get a waiver before providing some temporary form of cladding, whereas in the provinces I have found this not to be necessary.

Mr. Leonard C. Howitt [*F*], City Architect, Manchester: I approach Mr. Simons' paper from both sides of the fence, because whilst I am the City Architect I also have the responsibility of administering the building bye-laws through my chief building surveyor, Mr. Studd, who is a member of the Advisory Committee which drafted the Model.

I should like to add my tribute to Mr. Simons' paper and the skilful manner with which he has dealt with a subject which in less competent hands could be so dreary and uninteresting.

In his historical review of the fundamental relationship of building regulations to the practice of architecture, he has traced the development of building control from the simple yet vital criteria of 4,000 years ago, with their woeful penalty for contravention, through the calamities and conflagrations of history and the measures designed to prevent their recurrence, the precise requirements of Victorian legislation, into the complexities of the 20th century and the consequences of two world wars. Throughout the story Mr. Simons has, happily, kept aloof from detail and remained on the plane of principle.

He has shown how the lawyer's ideal of precise definition caused building regulations inevitably to lag behind the most progressive developments in building technique and has discussed the solution adopted in the 1953 Model, and has very rightly underlined the necessity for co-operation between the administrators and the practitioners to ensure the success of this brave attempt to achieve that flexibility which the technicians demand and which is essential to progress in constructional methods, materials and design.

All architects will welcome the new conception of building control which lays down fundamental performance requirements, leaving it to the developers' technical advisers to devise the means by which those requirements shall be met, and to the technicians in the local authority's building surveyors' offices to satisfy themselves that the solutions do in fact achieve their objective.

As instances of this process we find bye-laws which require that all materials used shall be of suitable nature and quality for the purposes for which they are used, that the load-bearing structure shall be capable of safely sustaining the loads, that external walls shall adequately resist the penetration of rain and snow, that the roof shall be weatherproof, and so on.

The manner in which these fundamental requirements shall be met is left to the skill and ingenuity of progressive architects, but for their guidance, and for the guidance of those who lack the inclination or the inspiration to look deeper into the solution, there are the italicised 'deemed to satisfy' clauses from which they will no doubt joyfully recognise that various old friends are still acceptable under the new conception.

The interpretation of these clauses in the manner of an examination paper that gives the possible answers to its own questions, is an ingenious device to provide flexibility and avoid restriction of new methods and materials, for there may be several correct solutions according to the structural system and the materials which the architect proposes to employ.

If advantage is taken of this flexibility, not only must the architect be satisfied that

his proposals meet the fundamental requirements but he must also satisfy the local authority's building surveyor that they do. Mr. Simons said that 'in all spheres of building, new ideas follow one another with almost bewildering rapidity, the more successful to remain, the less successful to disappear almost as suddenly as they appeared'.

It is because of the existence of these less successful experiments in the use of new materials and methods that officers of local authorities responsible for the administration of building bye-laws may be reluctant to accept new materials and unorthodox modes of construction unless they have been properly tested and approved by the Building Research Station or some other recognised authority.

The administration of the new model bye-laws will complicate the task of the local authority's officers and will call for a more progressive outlook, and a wider knowledge and appreciation of new structural methods and materials, than have been required hitherto. It must be obvious that there is great advantage to the officers and the developer's architects when the building surveyors operate in a section within the City or Borough Architect's Department where they, and the senior officers who decide contentious issues, and the Chief Officer who guides them, are familiar with current developments in the course of their daily practice.

One is tempted to add that the new model bye-laws may also be welcomed by architects because they demonstrate the complexity of modern building, and are enough to frighten any developer, and his builder, into seeking properly qualified professional advice.

As Mr. Simons has said, the new bye-laws in many cases make reference to British Standard specifications and British Codes of Practice; the appendix lists no fewer than 71 British Standards (with the comforting note that the list is not necessarily exhaustive) and 18 Codes of Practice and other publications which are mentioned in various bye-laws.

Although these Standards and Codes are not part of the bye-laws, at various stages in the building progress their terms will need to be known and understood; they cannot be meaningless symbols. They must be understood by the architect in preparing his working drawings and writing his specifications, by the building surveyor who checks the deposited plans, by the foreman on the job who has to comply with them, by the clerk of works and by the authority's inspecting district surveyor. To all these, numerical symbols would be insufficient and the Standards and the Codes must be available to be read and studied.

One could make many detailed comments on particular bye-laws in the Model, but I would take the hint from Mr. Simons' opening remarks and not embark upon a tedious business which might obscure the more important issues of principle, which Mr. Simons has propounded with scholarship and understanding, and for which we must all be very grateful.

Mr. George Fairweather [*F*]: I am not inclined to share the view that the new Model Bye-laws provide flexibility, if that is what we architects require from them. The new Model, on which local authorities, both in England and in Scotland, are required to base their bye-laws, does reach a compromise, as has been suggested by Mr. Simons, and I am not entirely sure that that compromise is to prove very helpful to either the lawyer or to the architect.

Mr. Simons has suggested that the technical ideal of complete flexibility with a reasonable minimum standard is required, on the one hand, and that the legal idea of absolute precision is required on the other hand. I would like to suggest that the purpose of the building bye-laws is to ensure that a building will not constitute a danger to life and health and that in fulfilling that purpose it should be sufficient to state the minimum standard of the function primarily concerned with those considerations.

It may be a little misleading to suggest that the technician and the architect require flexibility in building bye-laws. I think the architect would be very much better pleased to have precision. He likes to know what is the function and what is the standard of that function. At some stage in his work he has to reach some precision in his conclusions about necessary functions before he reaches his final design.

We have heard that in Babylonian times it was considered necessary that a building should be firm—no more, and no less. Knowledge was limited. They could not say at that time how firm the building should be. It was a matter of finding out in the course of time, and the penalty for any miscalculation was severe. Mr. Simons suggested that today, when we have very much greater knowledge upon which we can be more definite in stating a standard of firmness, we have introduced a functional bye-law very similar in purpose and extent.

There are two additional clauses to the functional bye-law which Mr. Simons did not mention:

'The dead load and imposed loads, including wind loads, shall be calculated in accordance with the provisions of the second schedule.

'This bye-law shall not apply to those chimney shafts to which Bye-laws 70 to 73 apply.'

That is an important point. These two paragraphs give precision to the functional requirement.

Throughout the ages from the earlier times attempts have been made to make our functional requirements specific. It was discovered that we could make the requirements terse and precise by defining the form of construction that was to be used. So we had the bye-law that described how thick, long, high and wide elements of building were to be.

We then had regulations governing buildings in relation to fire, and we then suggested that certain precautions should be taken when using timber in our buildings. We enlarged on these requirements throughout the ages, and in recent years we have had bye-laws prescribing forms of construction and materials which, of course, we have found have been highly restrictive and have hindered the progressive development in building technique.

As Mr. Simons has suggested, serious efforts have been made in the last 20 years to remove this restrictiveness of building legislation. I should like to make a brief comment on three recent provisions of bye-laws. The London County Council, in their recently revised set of bye-laws, have not made any very important changes towards the improved form which Mr. Simons has described in separating the functional requirement from the performance and the ways and means sections. They continue more or less to define the methods and the materials of construction.

Mr. Simons has, however, suggested that the London County Council bye-laws are more flexible in practice than the other models. Mr. White took exception to that observation, and I should like to say something about it, because in my view the administration of the London County Council bye-laws is so knowledgeable. Because of the technicians employed at the administration level and because of the great qualifications and skill and understanding of the district surveyors, a proper and broad-minded generous interpretation of the rules is possible.

Mr. Simons gave a very clear and helpful description of the principle embodied as far as possible to the several requirements of buildings in the model recently published by the Ministry of Housing and Local Government. I have commented on his omission from the functional requirements section, but there are several other bye-laws in this section dealing with the strength of buildings. Actually, there are six bye-laws in this part of the model relating to the strength of load-bearing structures, but, as explained by Mr. Simons, there are three broadly different kinds:

1. The purely functional bye-law;
2. The bye-law embodying the formulae that may be used for the purposes of design; and
3. The materials and methods of construction that may be used in building.

The last two are 'deemed to satisfy' bye-laws.

What is a 'deemed to satisfy' bye-law? We have not, I think, enough experience at the present time to find out how it is going to work. Does the 'deemed to satisfy' bye-law mean that the architect or the designer is free to use any suitable means for his building, provided that the standard indicated in the functional bye-law is fulfilled? If so, why are they included in the bye-laws? If they do not mean that, then how are we, as designers, going to prove the alternatives that we may find more appropriate for our purposes?

I suggest that in fact it may be very difficult to prove any alternatives in view of the fact that it has not been considered appropriate at this time to rely on professional opinion and the knowledge of the building industry and its integrity to devise

its own methods and fulfil the requirements of the functional bye-law by such means and processes as it may think fit.

I would like to suggest that between the several professions and the technical skill of the building trade and its operatives, and with the aid of our research organisations, we have very adequate means for developing our techniques and setting appropriate formulae for the use of these techniques to fulfil the desired standards. I think that our integrity should be relied upon to fulfil these requirements.

The 'deemed to satisfy' clauses, I think, may be helpful or they may be a hindrance. I gather from the feelings indicated by Mr. Simons that they may be a hindrance. I gather from the views that Mr. Howitt has expressed that they may gladden our hearts by giving us very useful guidance on how we should go about our work. I should like to support Mr. Simons' views that they may prove a very definite hindrance in our work. I suggest to Mr. Howitt that if, in fact, his objective—the objective he considers at present in these 'deemed to satisfy' clauses—is present, it is quite unnecessary to have them in the bye-laws at all.

Mr. Edwin Williams, M.B.E. [*F*]: Reference has been made to London County Council methods. Some of you may know that I have something to do with that institution and I am sure that the officers of the Council, if they could have heard Mr. Fairweather, would feel very indebted to him for the nice bouquets he has handed them. That is quite unusual for us and is very surprising, but it is gratefully received all the same.

I should like to join in thanking Mr. Simons for his paper and to appreciate with him some of the difficulties of building control. Although those of us who have to deal with this at the London County Council might be thought to be in love with the subject, we find it just as much a headache as does anyone at the other end of the control.

It is a mistake to imagine that the London County Council made the bye-laws. They were made for the Council by scientific and learned bodies, including the R.I.B.A.; the Council says 'Thank you very much' and publishes them as being the consensus of opinion of the learned and scientific people who have produced them.

But the London County Council has this advantage of procedure. It has for a long time been aware of the problem of the clash between performance and law. The result is that a lot of the building control by the Council is not in the form of bye-laws at all. In fact, the amount of building control by bye-laws is very small in content in relation to the rest of it. And the rest of it might be summarised rather along the lines on which Mr. Simons suggests that bye-laws should in future operate.

In the first place, there is the London Building Act, which deals with the principle. For instance, Section 20 of the 1939 Act prescribes the way in which controls shall be exercised for buildings of large content. All that Section 20 says, in effect, is that where a building is of more than 250,000 cu. ft., there shall be proper arrangements made and maintained for lessening danger from fire. It leaves it at that.

Having said that, it publishes in addition a set of codes, which it calls principles, dealing generally with the way in which it would propose to face this problem of lessening danger in case of fire. And then, those are supported in greater detail still—when we come to the question of material and the cladding of vulnerable parts—by the bye-laws, which say how much separation is needed between one type of occupancy and another. There, it would seem to me, is something approaching the ideals at which Mr. Simons is aiming.

They are not all contained in the one document, and that also is an advantage because they can be revised separately instead of together. In fact, when one is thinking about principles, Mr. Simons quite rightly hints that principles go on even from Babylonian times. That is why it is more convenient to revise bye-laws more frequently than to revise Acts of Parliament; and so that works out fairly happily.

Generally speaking, I think the feeling of the Council is that it would rather have less in the bye-laws and more in the Codes of Principles than the other way round, and probably for the reason that bye-laws have to have that tinge of law which makes them rather inflexible.

Reference is frequently made in the model bye-laws to British Standards. Not all British Standards are empirical; not all of them are scientific. Some of them, if I may say so, are a little woolly, and I think it is rather dangerous for an important authority to rely entirely upon British Standards to fall back upon for its yardstick, in the same way that I also feel it can be extremely dangerous for the practising architect to write his specification rather in the form 'Fire resisting doors: see British Standard 459' and so on. It is a lazy way of doing things, and I think it is far better, as Mr. Fairweather says, to be specific about these things; because there is not only the architect to be considered, but there are also the clerk of works and the foreman; highly scientific treatises on the performance of materials are not an earthly bit of use to them. What they want to know is whether a certain material is good enough or not.

Taking the argument into another field, I remember very well a little while ago, when there was a Building Research Congress in London, how the scientists got together and produced some very learned conclusions as to the qualities of acoustic material. I mention acoustic materials because they are creeping into the model bye-laws. But in the last resort, what one really needs to know, apart from the acoustic qualities of acoustic materials, is whether, if one puts a match to them, they will catch fire; whether, if they are dropped on the floor, they will break; or if they are soaked in water, whether they will refuse to stand up, and things like that.

It is in the last resort that I think simple tests like that should be applied in a simple way in the form of bye-laws. The more abstruse questions of performance should be kept out of the bye-laws and brought out in the form of words which would give a yardstick of performance. That would save the attitude of 'You can either do this or you can do that, but in the last resort if you do this as a minimum, it is good enough'.

Mr. W. A. Sherrington [*F*]: As architects I think we can say that we welcome wholeheartedly the principle of flexibility. By that I take it that we shall be able to get from bye-laws a wider and more generous contribution. If, of course, they can be simplified at the same time, so much the better.

I feel that everybody present would agree that a too rigid interpretation of bye-laws in the early part of this century—in the 1920's even, after the First World War—was a great retarding influence on the development of architecture in this country. In fact, in what we might call the early years of the modern movement, progressive architects in this country were, in my opinion, far too severely handicapped.

I detect in the remarks of one of the speakers that, by reason of the vast number of new materials and new processes, modification in bye-laws becomes essential. But I feel that in addition to that, there is not an acknowledgment in the minds of controlling authorities that architects—by that I mean technicians—have in the passage of time, by integrity, by improvements in education, merited the fact that the human element should also be regarded as an essential factor in this flexibility.

In my limited experience I have detected, in addition to the ordinary interpretation of the bye-laws, a more human understanding, if I could use that expression, in the minds of municipal and other bodies whose duty it is to administer bye-laws. That is a tendency which will be very helpful in future.

We have looked back 4,000 years and we have come to the present day, but I should like to hear Mr. Simons' observations on the immediate future—certainly not 4,000 years ahead, but covering, say, the next 50 years. I feel that that tendency may grow and that there will be a better spirit of co-operation and not such a rigid interpretation of bye-laws.

I like the simplicity of the Babylonian code. I hope we shall approach something of its brevity in the future. But is there such a distinction between the penalties as might be supposed? As an architect I might suggest, and more eloquent gentlemen might effectively argue, that the collapse of a building by a qualified architect is something worse than death: it is professional extinction, a long lingering process, which, as I say, can be regarded as a most dire form of punishment, certainly much more prolonged than decapitation.

Mr. Simons: I do not know that I dare go so far as to prognosticate the future, but I rather imagine that Mr. Sherrington is

thinking on much the same lines as I have before me as an ideal of complete flexibility, to go back almost to the purity of the Babylonian code.

We are approaching an age when we can say that people who carry out any work of a technical nature, such as the design and the erection of buildings, will be, shall we say, reasonably competent people anyway. It has not always been so in the past, and I hope also that there will be considerably more integrity amongst them than there has sometimes been.

I dare not look so far ahead as to the day when we shall not need any building control at all, but I feel that we are building up a very comprehensive series of codes of practice which must have some use. I believe they have been welcomed by quite a lot of people in the building industry—I include in that the architectural profession—and I feel that in the future lies an intelligent association between the law, on the one side, and codes of practice as laying down the way in which buildings shall be erected.

I should like myself to see a very simple code, based entirely upon function—that is, the result that shall be achieved—and leaving everything else to the integrity and the ability of the architectural profession, the other professions associated with building, and the building industry, supported by codes of practice as a sort of ultimate authority to be referred to in the event of any alleged deficiency.

A court of law must always have something which will show it whether a building has been designed and built properly. It has no knowledge itself of building; it must be assured of some authoritative yardstick, as it were, and I think that codes of practice—not perhaps necessarily as they are today, but some form of code of practice—would provide that yardstick. Whether we shall ever get there, whether we shall get there in 50 years or not, I would not know.

I should like to clear one point that has been touched upon by other speakers: that is, my remark about the London County Council system giving greater flexibility than the system used by the Ministry in the provinces. I did not mean to imply that building control in London was any easier than it is in the provinces. What I meant to suggest was the point made by Mr. Williams, that the system in London is capable of greater flexibility by the close working hand-in-hand of the London Building Act and London Building Bye-laws administered by the one authority. Local authority bye-laws in the provinces stand on their own. A local authority is bound by its bye-laws, and it has no direct power of waiver, as the London County Council has.

Mr. Thomas Sibthorp [*F*]: The value of the London County Council bye-laws is the power of waiver. That is really what gives them their flexibility.

On the question of functional *versus* 'deemed to satisfy' bye-laws, I think that both have a very useful purpose. Unfortunately, we are not doing buildings of a large enough scale on which it would be reasonable to spend time in going into greater detail of technical stability. If we are to have a building at all, it is necessary to know that something is right and good with a given set of rules and without a lot of calculation. On the other hand, I feel that the functional approach is the right approach to the larger schemes, in which more trouble and expense is possible.

That brings me to the point, which other speakers have raised, of the need for knowledge by those who administer the bye-laws. It proves, I think, that if architects want to hold the position of kingpin on every job, if architects are to be the first men on every job and looked up to in that position, they must acquaint themselves with all the various happenings in technical development of buildings and be in a position to prove and use the functional method of construction and general administration. In other words, they have to be leaders in their knowledge.

Although I sincerely hope that we shall have very sympathetic consideration and the right type of men of ability who are capable of administering bye-laws, the first important thing is to make ourselves as fully in touch as possible with technical advances, so that when administering the work we can ourselves carry out those advances and use the bye-laws functionally rather than as purely 'deemed to satisfy'.

Mr. S. D. Studd (Chief Building Surveyor, City Architect's Office, Manchester): I should like to pay my tribute to Mr. Simons for the excellent historical background to bye-law making powers which he has so admirably sketched. He has drawn our attention to the arrangements of the new bye-laws wherein architects are given wider scope in the use of British Standard specifications and new materials and modes of construction, but I think that there may be limitations to this wider scope.

The onus will always lie with the architect to prove to the local authority's building surveyor that any new material or new mode of construction will be comparable with or equivalent to the relevant 'deemed to satisfy' clause. It is unlikely that the building surveyor will accept such new material or mode of construction unless the Building Research Station or some other similar scientific organisation has satisfied itself as to its suitability to meet the fundamental performance requirements.

Mr. Simons has reminded us that it is now the practice to express bye-laws in terms of performance, and this principle has been extended to as many bye-law provisions as possible. Hence we now have the functional bye-law supported by the 'deemed to satisfy' clause, but some of the most important bye-laws do not contain 'deemed to satisfy' clauses. There is, therefore, in these particular bye-laws a lack of direction. They usually require something to be done in a 'suitable, sufficient, adequate or reasonable' manner. The discretion usually lies with the local authority's officer to determine how these provisions shall be complied with.

Mr. Simons has referred to clauses relating to fire resistance which are expressed in terms of the combustibility or non-combustibility of materials and periods of fire resistance of the elements of the structure. It is, I think, difficult to understand why a bye-law requires an internal wall to possess a certain degree of fire resistance but that any door openings in the wall may be protected by doors having a fire resistance of only half the period that is required for the wall and no provision is made to ensure that the door is self-closing.

The bye-law in the new model with respect to ventilation of buildings requires every domestic building to be provided with effectual means of ventilation. The memorandum to the model reminds us that the old requirement that the window area should be at least one-tenth of the floor area is out of date and suggests that we should be guided by the recommendations contained in the British Standards Code of Practice 'C.B.3. Daylight'. This code cannot be related to this group of bye-laws and cannot be enforced as it is not a penal code. Hence it will be left to the local authority to decide what is effectual ventilation.

The bye-laws with respect to drains require that where a drain is laid under a building it shall, unless constructed of cast iron, be completely surrounded with six inches of concrete. There may well be cases where this is an unjustifiable waste of concrete, but the local authority is given no discretion and such surroundings to drains must in all cases be enforced, notwithstanding that we are being reminded by Government Departments that there is still a shortage of certain building materials.

An entirely new bye-law has been framed requiring provision to be made to prevent the spread of fire where openings in an external wall are vertically above openings in a lower storey. It may be that when architects have had an opportunity to study more carefully the implications of these provisions they may find these requirements to have a restrictive effect upon designs.

It is, I think, unlikely that the new model will be acceptable to all who have to administer its provisions or those who have to comply with its requirements, but at least it can be said that it is a considerable improvement on the previous models, and when it falls to be revised again in another ten years' time some of the present restrictions and difficulties will easily be ironed out and readily removed.

Mr. C. D. Barnard [*A*]: I happen to be the Assistant Senior Architect to the Building Regulation Division of the London County Council and have lectured on the bye-laws for several years. I say that because I am very strongly opposed to this idea of flexibility at all, and I assure you that I have good grounds for saying so.

I should like to quote two cases of flexibility. One of the requirements of the London Building Act is that an internal court shall be adequately ventilated. We

had an application a little while ago regarding a court 40 ft. long by 20 ft. wide and which went up to a height of 60 ft. The 'adequate ventilation' supplied by the architect was four 6-in. drainpipes. That is flexibility which is simply sheer nonsense, whereas had we said that an opening should be provided to ventilate that court 'being not less than . . .' the man would have known exactly what we meant and would have provided it.

In the other case we had an application from a young architect to know whether he could enclose a building with a wall 30 ft. high in half-inch glass. This flexibility is a very dangerous thing, and I hold very strongly—I hope I shall not offend anyone by saying so—that the Council's bye-laws are materially better than the new model because they give direct guidance; and, as Mr. Williams has said, under Section 9 we can give waivers.

After all, we in the London County Council are just as much alive to modern processes and materials as most other people, and if we think that a thing is sound, reasonable and good, we recommend it. We do not just say 'The bye-law says so and so; therefore, so and so it must be'.

Is it possible that the Institute could make it part of its technical training in the schools that young architects are brought up to learn at the outset the Acts and the bye-laws appropriate to London or the provinces, as the case may be? I find when going round the different schools looking at students' finished drawings that they have no idea that such things as bye-laws exist, and the most extraordinary things are done. When I say to them 'But you cannot do that', they say 'We were never told we could not do it. Ought not our master to have told us?' One turns with a red face and says to the master 'I suppose you ought to have said something', and he says 'My dear man, I know nothing about it. I am a designer'.

I put it forward seriously for thought that when formulating a new syllabus the Institute might consider that the Acts and bye-laws should be taught at the earliest part of an architect's training.

The President: I do not know to whom that suggestion is addressed, but the nearest educationalist here is Mr. Scott, and I am sure he will have a good deal of sympathy not only for the speaker but also for the Institute. Would Mr. Scott like to say anything?

Mr. Thomas Scott, C.B.E. [*F*]: I could not agree more with Mr. Barnard. Unfortunately, of course, the whole problem of architectural education—and what a complex one it is!—is becoming far more complicated as the years go on, and I suppose that the average student dislikes the study of building regulations almost as much as he seems to dislike the study of construction in so many of its forms. They seem so much more difficult than making designs.

Something has got to be done to bring the average student, or more students, to realise that although the architect's work begins on a drawing board, it does not end there. Not only the most difficult but, I think, the most interesting part of his work begins when he gets off the drawing board.

I will not be drawn into a dissertation on the problems of architectural education. In fact, I think I am getting almost too old to be expected to know anything about it. My experience is that the average first year student in a school seems to know more about architectural education than his teachers; and even the average architect in practice knows far more about architectural education than those who have devoted their lives to it.

I think I had better leave it at that, but I am sure the point will be taken note of.

A vote of thanks to the contributors to the discussion was put to the meeting by the President and was carried.

Architectural Journalism

The following contribution to the Discussion on the papers by Mr. Ian McCallum and Mr. Ian Leslie reported in the June JOURNAL *has been received from Mr. H. L. Childe, Managing Editor, Concrete Publications Ltd.*

Unless he select for criticism only buildings that he likes and wishes to praise, the criticism of current architecture is too risky to be undertaken by the editor of any journal. There is no analogy at all with the reviewing of books and the criticism of plays and art exhibitions. In these cases the publishers send the books and ask for them to be criticised, and critics are given free tickets to the theatres and exhibitions for the express purpose of publishing their honest opinions on the plays or works of art. If the criticisms are adverse, then the book publishers, playwrights and gallery-owners have no redress because they have asked for criticism—unless, of course, they can prove that an adverse comment was written with malicious intent. It is quite a different matter for a critic to photograph a new building and publish an adverse criticism. To say that an architect's work is not good architecture is to say that he is not a good architect, and this would, quite rightly, lay the editor open to a claim for damages. This could be avoided only if architects ask for their work to be criticised, but it is likely that architects who favour architectural criticism wish it to be applied only to the work of others!

Hansom's dictum that the building industry (including architects) is one and indivisible was written more than a century ago, and is no longer true in the same sense. Salaried architects employed by Government departments, local authorities, national boards, industrial concerns, and so on, are now in the majority, and are in the position of employers of contractors and sub-contractors. They are no longer, as are architects in private practice, independent arbitrators between the building owner and those who build the building, but part of the building owner's organisation, and so outside the building industry.

The statement in one of the papers that 'It is the Editor's job, in consultation with the Board, to devise a formula which will hold the attention of readers and induce advertisers to lend support' is not, I think, a happy one. In my view the editor should be concerned solely to produce a paper which will command a large sale and so make it easy for the advertisement department to sell advertising space.

An editor is personally responsible for any libellous or damaging statements that may appear in advertisements, and it is my opinion that he should have some control over them. For example, I have turned out from the journals that I edit advertisements that in my opinion were misleading or were advertising products that in my opinion were worthless, and the loss of revenue has been well repaid by the preservation of the quality of the paper and in protecting its readers. In most cases an editor sees the advertisements only when his journal is on sale; I have, however, always insisted on seeing the advertisements before they are printed, because it is my duty to have satisfied readers and a reader is unhappy if he thinks he has been badly treated by an advertiser.

It is very doubtful if a journal would cost three times its present price if it had no advertisements. A proprietor of a trade paper told me recently that he was increasing the price from 1*s.* to 1*s.* 6*d.*, the principal reason being that the paper in each number cost 9*d.* This assumed that the reader instead of the advertiser should pay for the paper on which the advertisements were printed. In a number of average size the cost of the paper used for the editorial pages of the weekly architectural journals is, say, between 3*d.* and 4*d.*, and this is the only paper that should be paid for by the reader. In the case of the journals in my charge the revenue from sales covers the cost of producing the editorial pages, including blocks and contributors' fees, and leaves a margin of profit.

Those who knew W. T. Plume [*Hon. A*], who retired from the editorship of THE BUILDER in 1937 after 50 years' service with that journal, may like to know that he is living with one of his sons on a farm in Devon. He is in his 85th year, and a letter received from him recently showed that his mind is as alert and his handwriting as firm as ever.

John Wood the Elder, of Bath

By Walter Ison, F.S.A.

Editor's Note. *In May of this year the Bath Assembly commemorated the bicentenary of the death of John Wood the Elder of Bath, with whose name the architecture of that city is so closely associated. At the invitation of the* JOURNAL *Mr. Walter Ison, the well-known authority on the subject, has contributed the following appreciation of John Wood and his work in Bath and its neighbourhood.*

TWO HUNDRED YEARS AGO, on 23 May 1754, the elder John Wood died at Bath, the city with which his name is forever linked. He had been active there since 1727, creating a new quarter having those qualities of architectural uniformity and monumentality that had hitherto been reserved for the treatment of public buildings, or great town and country mansions. His achievement was to raise to a high pitch the standards of street design and town planning, thus setting the pattern for much of the best urban architecture of the following hundred years. It is, however, only fair to state at the outset that Wood's achievement was foreshadowed in the attempts made by certain London builders to impose uniform compositions on the elevations of the new Mayfair squares. There can be no doubt that Wood gained his experience of town design and speculative building from his employment in London at the time when the Harley and Grosvenor estates were developing as aristocratic suburbs, centred on great squares and having their own chapels and markets.

Wood's writings provide many clues to his character, his tastes and his somewhat curious brand of erudition, but they tell us nothing of his early life. Sufficient evidence has now been uncovered to disprove the long-held view that he was born in Yorkshire and brought to Bath by Ralph Allen. Parish registers show that families named Wood were established in Bath and in several nearby villages, and it is highly probable that the entry in the register of St. James's, Bath, recording the baptism on 26 August 1704 of John, son of George Wood, relates to the future architect. It is now known that he was educated at the Blue Coat or Charity School in Bath, and his 'Essay' shows that he was deeply versed in local history and tradition.

It may have been through the patronage of Lady Elizabeth Hastings that Wood came to be employed by her Yorkshire neighbour, Robert Benson, Lord Bingley. It is certain that Wood was at Bingley's Yorkshire seat at Bramham, at various times between 1720 and 1725, working on lay-outs for the park in the manner of Le Nôtre. This experience must have influenced Wood's approach to the solution of his later problems in town planning. His rigidly Palladian outlook was due, no doubt, to the fact that he began his career in the first flood of the Palladian revival, working near the circle of its leaders.



South Parade, Bath, 1775. From an engraving by Thomas Malton, Junr.

Wood was at Bramham when he made his first plans for extending Bath. He had been kept well informed of impending developments there, and he prepared two alternative designs for a new quarter. One was on the site of present Bathwick, and the other on the rising ground of Walcot to the north of the existing city, upon which ground the building eventually took place. In each scheme Wood proposed to 'make a grand Place of Assembly, to be called the Royal Forum of Bath; another Place, no less magnificent, for the Exhibition of Sports, to be called the Grand Circus; and a third Place, of equal State with either of the former, for the practice of medicinal Exercises, to be called the Imperial Gymnasium of the City, from a Work of that Kind, taking its Rise at first in Bath, during the Time of the Roman Emperors'. This grandiose and idealistic conception was to remain uppermost in Wood's mind, finding eventual expression in the forms and names given to the monumental features of his planning.

Although he possibly gave the draught for Allen's Town House, Wood's first works of importance in Bath were St. John's Hospital and Chandos Buildings—the last no longer existing. The erection of these buildings, between 1727–30, brought



Queen Square, Bath

Wood small profit and much abuse from his client, the Duke of Chandos. They form, however, a landmark in the architectural history of Bath, being superior in scale and style to any of the buildings immediately preceding them.

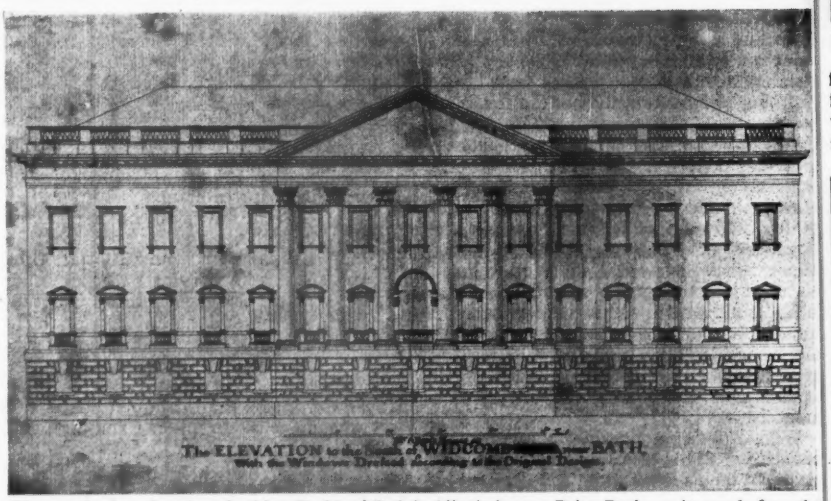
A succession of set-backs to his plans led Wood to take the bold step of speculating with the building of Queen Square (1728–35). In his first imaginative conception the open area was visualised as the forecourt of a palace, the houses on the north side, forming the principal front, being treated in true Palladian style; a rusticated ground storey forming a podium for the giant order of engaged Corinthian columns which decorate the end pavilions and the pedimented centre, with corresponding pilasters in the intervening wings. The east and west sides were to have formed balancing ranges of subsidiary buildings with elevations of subdued character, but circumstances forced a change of design on the west side. On the south side the roadway was to have been one hundred feet wide, forming a promenade extending beyond the confines of the square and terminating on the west with a chapel, and on the east with, possibly, a market hall.

As the work in Queen Square drew to a close, Wood turned his activities towards realising the first great feature of his original conception—the Royal Forum of Bath. Jointly with Leake, the bookseller, he leased the marshy site of the Abbey Orchard, on the east side of the city. The Parades and their connecting streets were the only part of the immense project to be completed, and the high-handed action of his sub-lessees forced Wood to modify his design and omit the palatial Corinthian order and rusticated substructure which he rightly regarded as the necessary dress for a great building in so salient a position. Even so, Wood's bold conception of grouped houses raised upon vaults and fronting on to broad terraces must have influenced the later Adelphi buildings of the Adam brothers.

The King's Circus (1754–67), forming the second element of the upper town that he had begun, marks the end of the elder Wood's actual contributions to Bath's architecture. Basically this scheme appears to derive from the Place des Victoires in Paris, designed about 1686 by J. H. Mansart, especially when it is remembered that Wood intended an equestrian statue of George II for the centre of his Circus. The 33 houses surround a circular area of 318 ft. diameter, and are grouped into three equal segments—a brilliant contrivance of planning giving an effect of a continuous range of building confronting the spectator and closing the vista from each of the entering streets. The elevations 'in theatrical style' are obviously derived from the Colosseum and are most elaborate. The three stories are enriched with superimposed orders of Doric, Ionic and Corinthian columns, arranged in pairs and carrying their appropriate entablatures, while the crowning parapet is surmounted by carved acorns centred over the paired columns.



The Circus, Bath, 1784. From an engraving by T. Malton



The north elevation (overlooking Bath) of Ralph Allen's house, Prior Park, as it was before the addition of the external axial staircase

Wood designed several houses and villas in the country around Bath, the finest and most famous being Ralph Allen's great mansion of Prior Park. Begun in 1737, it is said to have been intended to demonstrate the qualities of local freestone, and the building was still unfinished when a quarrel with Allen caused the work to pass from Wood's control into less competent hands. Had Wood's design been fully realised, Prior Park would have formed one of the most perfect expressions of Palladian taste in this country; far finer, in fact, than its prototype Wanstead.[1] For Wood, taking advantage of the amphitheatric site, avoided the excessively straight length of Wanstead and Wentworth Woodhouse, and aligned his buildings to form three sides of an immense duodecagon. The entrance front of the mansion, facing south, is severe in expression and has an engaged Ionic portico. The front facing north, looking down the valley towards the city, is distinguished by its magnificent hexastyle Corinthian portico. The low flanking ranges were designed by Wood in a simple Tuscan manner to act as foils to the splendour of the mansion, but they have been so much altered and heightened that they now challenge the weight of the central mass.

In addition to his work in Bath, Wood designed the Exchange in Bristol (1741–43), giving that city its finest 18th-century building. The high competence he showed in this undertaking led to his employment by the Liverpool Corporation to design for them a similar Exchange. Built between 1750–54 under his son's direction, and altered by James Wyatt after a fire in 1795, the Liverpool Exchange now serves for the Town Hall.

Wood died shortly after he had laid the

[1] Camphill's first design.



Prior Park as it is today

first stone of the Circus, which was faithfully completed by his son and namesake, who was to add to the monumental sequence by building the Royal Crescent (1767–75). The following obituary notice was published in the BATH CHRONICLE: 'Last Thursday Morning, about Three o'clock, died after a long and tedious illness, in the fiftieth Year of his Age, John Wood Esq., one of His Majesty's Justices of the Peace for the County of Somerset, celebrated for his Designs, Plans and Skill in Architecture: more particularly in this, and a neighbouring City, the second great Mercantile Trading City of this Kingdom. All of which is known to be the Effect of his great Genius: as well as undefatiguable Study and Application, in this very noble and useful Science: Amidst a world of Calumnies, Falsehoods and Discouragements, which he bravely surmounted: He not only raised himself in the Esteem of his Superiors: but in the Compass of a few Years, by an honest and commendable Industry, obtain'd an handsome Competence for himself and Family—In a word, he had no enemies but those who either envied Him Themselves, or went too far in crediting the defamatory Reproaches and Scandals of Others.'



The Exchange, Corn Street, Bristol, built by John Wood in 1743. A plaque to commemorate Wood's bicentenary has recently been affixed to this building

A contemporary impression is always valuable and it is worth while to quote from the letter written from Bath, in June 1749, by Sarah Clayton of Liverpool to one of her influential friends there, commending the choice of Wood as architect for the proposed Exchange. She writes: 'it gave me great pleasure when it was first Rumoured that y^e^ Gentlemen of the Corporation had applyed to Mr Wood; for a Plan for y^e^ New Exchange. his generall Character must be known by every Person who comes here, in y^e^ many Useful & ornamentall Buildings which he has caused to be erected. but upon your letter, I made particular inquiry into his character, and on all hands He is agreed to be a great Genius.

'Mr Peirce,[2] who is a person of great taste, told me that, Except Lord Burlington, there was no Person in England that had a Juster & better taste in Architecture.'

His work alone entitles Wood to a high place among English 18th-century architects, but the influence of his town design was profound and long-lasting. To realise the truth of this one has only to examine the later buildings of Bath and Bathwick, Bristol and Clifton, Edinburgh New Town, and so much of Georgian London. Robert Adam, George Dance the younger, James Wyatt, and John Nash are the great names among many who profited by Wood's pioneer achievement in Bath.

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[2] Jeremiah Peirce, a Bath surgeon, for whom Wood built a small villa called Lilliput.

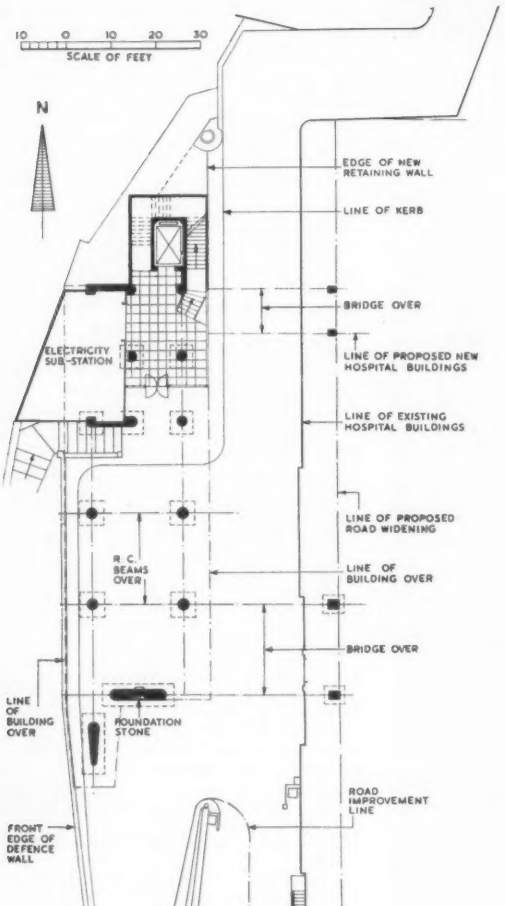


King George VI Memorial Hospital for Children, Gibraltar

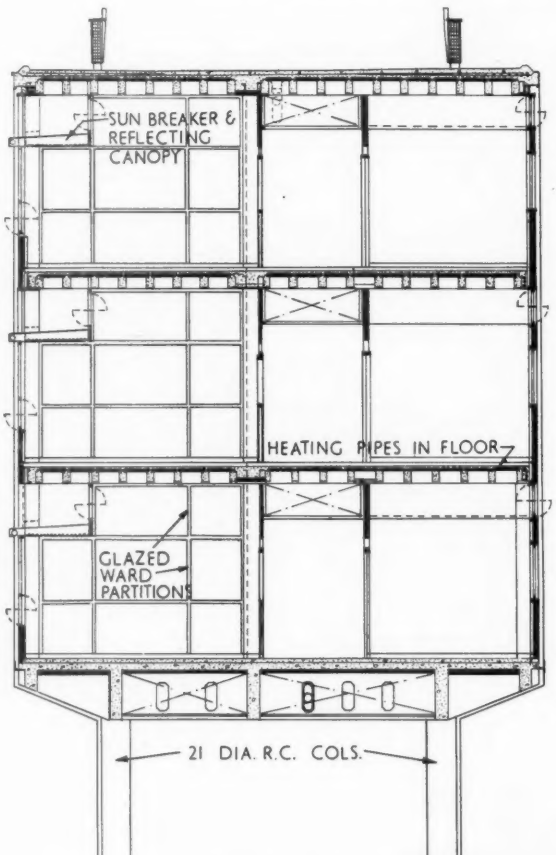
Architects: Covell and Matthews [*F/A*]

THE QUEEN laid the foundation stone of this new hospital during her recent visit to Gibraltar. The full scheme comprises a new Colonial Hospital to be built gradually in stages on the site of the existing one; but the immediate problem was to provide increased accommodation for children, and it was decided to build the new children's wing either within the curtilage of the existing site or in the immediate vicinity, thus allowing use to be made of the services of the existing hospital. The only reasonably large area of land available lay just in front of the existing buildings and on it the children's wing is being built.

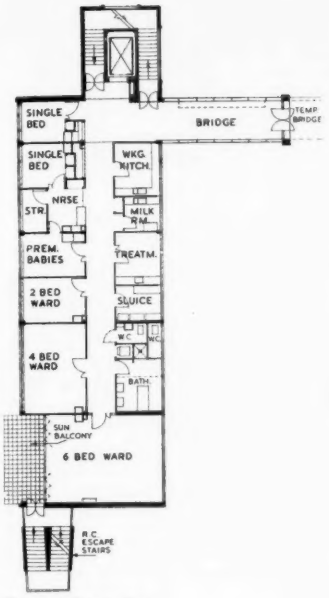
It was necessary to maintain the access road to the front of the main hospital and



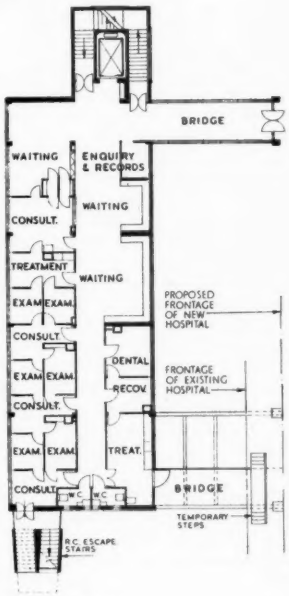
Plan at entrance level. Owing to the congestion and steepness of the site, the road continues under the building



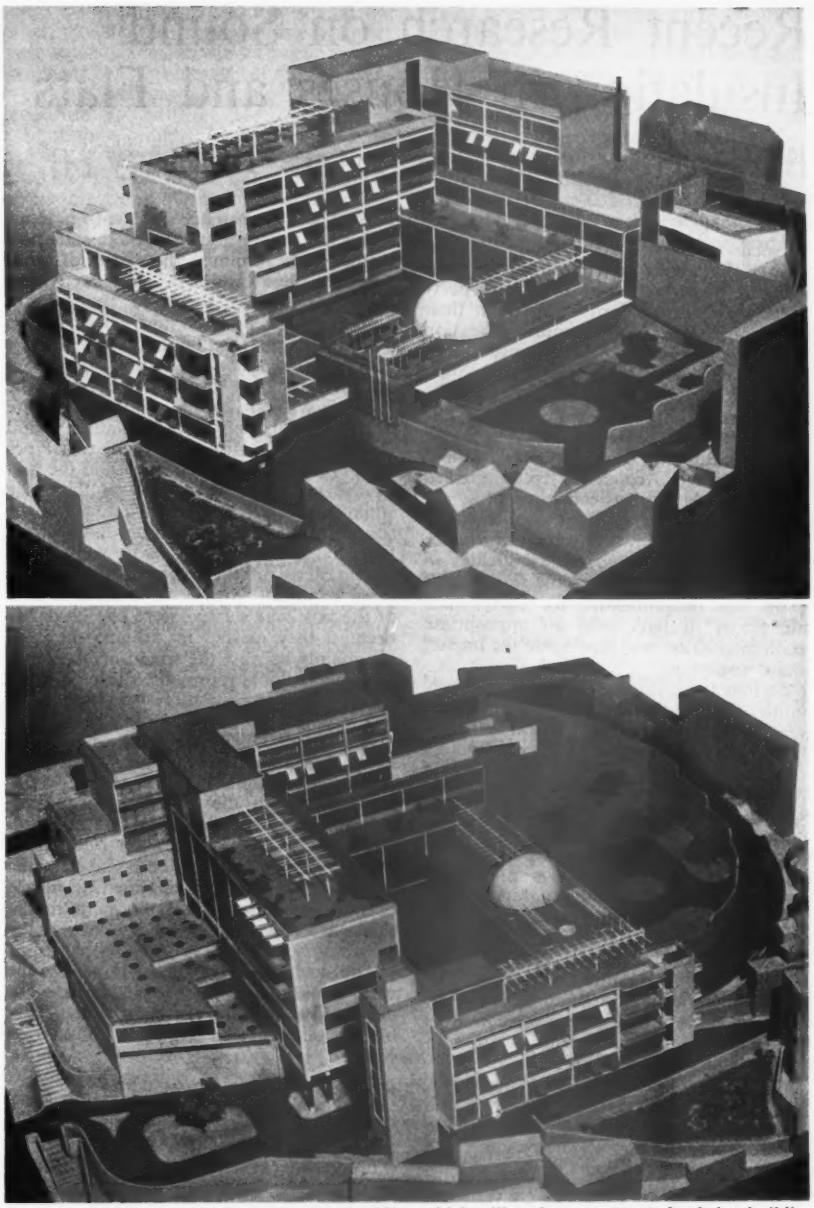
Typical cross-section. The lower part of the structure is reinforced concrete; the upper is of steel frame with curtain walling



Second floor plan



First floor plan



Two views of the model of the complete building which will replace a congested existing building in sections. The block now under construction is in the foreground of the lower photograph

also to provide a covered car park, and therefore the new wing is being built upon a supporting structure in order to leave the site open at ground level, the upper floors being connected to the main hospital by bridges.

The planning provides for a children's clinic and dental treatment on the first floor; the second and third floors have 15-bed wards, each split into units of six beds and varying combinations of four, two and one beds. Provision is made for the nursing of premature babies.

The supporting structure at ground level is in reinforced concrete, and on this the superstructure is steel frame, the steelwork being encased with 1½ in. clay block plastered internally and rendered externally. This method of construction eased the difficulty of providing scaffolding, for at the edge of the site there is a drop of 40 ft. The columns nearest the drop are tied back to the rear columns to prevent any risk of spreading in case of a local failure of the ground.

The main staircase walls are in reinforced concrete rendered externally, and the main cladding is a form of curtain walling with an infilling panel of Vitroslab fixed to Stramit. Above the first floor the floors are of patent design using prestressed concrete beams and 2-in. woodwool slabs as permanent shuttering.

To give light in the centre of the wards, when the sun-blinds are drawn, canopies are provided at about 7 ft. 6 in. above the floor, projecting inwards; these will reflect sunlight from their top surfaces on to the ceilings of the wards. Night lighting is arranged at skirting level to give a soft glow over the floor to ensure enough light for the nurses without distracting the patients.

The consulting engineers for the structure are Messrs. Leonard and Grant.

Recent Research on Sound Insulation in Houses and Flats



By P. H. Parkin, B.Sc., and E. F. Stacy [*A*]*

Introduction

A social survey[1] made during the war showed that about 25 per cent of the people living in houses with 9-in. solid brick party walls were disturbed by noise from their neighbours. The air-borne sound insulation (averaged over the frequency range 100 to 3,200 c/s) of a 9-in. brick wall is 50 decibels (dB) and it was reasonable to assume that if the insulation were increased the disturbance would be reduced. Accordingly, Post-War Building Studies No. 14, 'Sound Insulation and Acoustics', recommended that the insulation between adjacent living-rooms should be 55 dB. The war-time survey had also shown that the disturbance due to noise was a good deal greater in flats than in houses. The same standard of 55 dB was recommended for party walls and floors in flats, and an appropriate recommendation was also made for impact sound insulation.

At that time, during the war, only very limited field and laboratory measurements were possible, but since the war a lot of work has been done on the problems of sound insulation, both in flats and in houses. The present article summarises the results obtained and conclusions drawn and it will be seen that it leads to important modifications of the earlier conclusions, both in relation to what is practically possible in sound insulation and in the way physical measurements of sound insulation should be expressed either for comparing the behaviour of different systems or in defining acceptable limits. In particular the existing method of expression by means of a single figure of 'average' insulation is shown not to have a realistic relation to human perception of noise.

The post-war work has taken two forms; first, an extensive series of physical measurements of the sound insulation of all types of party walls and floors in houses and flats (nearly 1,000 walls or floors were measured) and, secondly, assessments of the effectiveness of the various levels of sound insulation in terms of the reactions of the tenants. For this type of assessment we need a fairly large 'sample'—several hundred—to get sufficiently reliable answers. Further, we must try to allow for all the other variables, e.g. number of children per family, which are likely to affect the tenants' sensitivity to noise. For example, we ought to compare the reactions of a large group of tenants in an estate of flats where the sound insulation is, say, 50 dB, with the reactions of another group in flats with an insulation of 45 dB but which in all other respects—number in each family, noisiness of environment, size and number of rooms, heating arrangements, previous social history, and so on—are similar. In practice this is not possible, and although statistical methods can minimise the effects of other variables these cannot be eliminated altogether. It is clear, therefore, that we are limited in the number and extent of the assessments that can be made.

With semi-detached houses (terraced houses have not been investigated) the problem was fairly simple in that there are only two main types of party wall, the solid wall and the cavity wall; these two types were compared for effectiveness in the first of the post-war surveys. With flats, the situation was far more involved in that the sound insulation in existing flats varied from the 55 dB of 11-in. cavity walls down to the 30 dB of the plain joist floor. The three groups of flats selected for the second of the post-war surveys were chosen partly because they existed in suitable numbers but mainly because the sound insulation of their party floors represented three grades: first, as high an insulation as is practicable to obtain at the present time; second, the insulation that exists in most present-day flats other than two-storey blocks; third, an insulation that, it was thought, would represent about the lowest that could be tolerated. As will appear below, all other types of construction that, for one reason or another, have not been investigated subjectively have been classified by means of their measured insulation in terms of those structures that have been investigated subjectively.

The social surveys have all been done with local authority tenants, who are not necessarily an average sample of the community as a whole.

Results of Post-War Work

Houses. Measurements on a large number of sites have shown that the 11-in. cavity wall can provide an average sound reduction of 55 dB over the range of frequencies for which it is normally tested, while the 9-in. solid wall gives an average reduction of about 50 dB. The cavity wall was more variable than the solid wall. However, a survey of tenant reaction to noise from their neighbours has shown only slight differences whether the party walls were of solid or cavity construction. While the survey covers only one group of the population, the result made it necessary to examine whether there was any physical explanation on the basis of the measured values. The higher average insulation of the 11-in. cavity wall has been found to be attributable mainly to a greater insulation at the higher frequencies, while at the low and medium frequencies its insulation is little better than that of the 9-in. solid wall. Tenants were not able to define the frequencies that caused annoyance, but it is mostly the medium and low frequencies that are heard through the party wall and this may explain the result. The available evidence indicates therefore that the extra insulation at high frequencies afforded by the 11-in. cavity party wall has not any sufficient advantage over the 9-in. solid party wall for the 11-in. wall to be preferred.

We must now consider whether some other form of party wall construction with an insulation higher at all frequencies than that of a 9-in. solid brick wall would be appreciated by tenants of semi-detached houses. We cannot make a reliable survey of tenant reactions because party walls at such higher insulation do not exist in sufficient number. But we can get some indication from the tenants living in the 50- and 55-dB houses, who were asked: 'Would you rather hear some noise or no noise at all from the adjoining house?' The replies were: some noise, 64 per cent; no noise, 25 per cent; no opinion, 11 per cent. Further, they were asked whether a slight increase in rent would be considered worth while to ensure greater quiet; 20 per cent said that they were prepared for some slight increase in rent. This does not, however, mean that 20 per cent would in fact pay more rent; we can only say that 20 per cent is the maximum proportion who would consider the provision of sound insulation above that of a 9-in. solid wall to be worth expenditure. Of this 20 per cent, the majority wanted complete insulation. On the other hand, while it is true that 64 per cent of the tenants want to hear some noise, it does not follow that they want to hear as much noise as they do now.

Flats. A social survey[2] has been made in three groups of flats whose party floors were known from measurements to have certain different values of sound insulation; the party walls all had about the same insulation. For the present we will refer to these groups as of high, medium and low floor insulation. A great deal of information was obtained from this survey, some of it difficult to interpret, but the broad conclusions were as follows:—

The amount of noise *heard* by the tenants (actually it was the wives who were questioned) was in line with the measured sound insulation of the floors, i.e. the tenants in the high floor-insulation flats heard less noise from their neighbours than those in the medium floor-insulation flats, who in turn heard less than those in the low floor-insulation flats. However, although the percentage of tenants who were *disturbed* by the noise heard was smaller in the high

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insulation flats than in the medium insulation flats, the tenants in the low insulation flats were least disturbed of all. The reason appears to be that differences in other social conditions between the low insulation group and the other two groups outweighed the differences in sound insulation. For example, the low insulation flats were much more crowded than the other two groups; the percentage of flats with more than two people per bedroom was 45 per cent in the low insulation group compared with 4 per cent in the high group and 16 per cent in the medium group.

This happy immunity of the low insulation group extended to other living conditions besides noise; nearly half of them could not think of anything at all to complain about concerning the design of their flats, although by the generally accepted standards of the day their flats were certainly not superior to the flats of the other two groups, where about 90 per cent of the tenants complained about one thing or another. (It would have been more convenient if the low insulation group had had the same social conditions as the other two groups, but no such suitable flats could be found.)

If, instead of judging the tenant reactions simply in terms of the proportions of tenants disturbed by noise, we judge them in terms of the disturbance due to noise relative to the disturbance due to other factors, then all three groups showed answers in line with the measurements; in both the low and medium insulation groups more tenants complained about noise from their neighbours than about any other single thing; in the high insulation group noise was only one of several things that the tenants complained about.

The low insulation group of tenants was probably not so typical of the local authority tenants of this country as were the high and medium insulation groups; only the results from those latter two groups will be considered further.

In the high insulation group, 26 per cent of the tenants described the noise from their neighbours as 'disturbing' or 'very disturbing', while the remainder described it as 'a little disturbing' or 'not at all disturbing'; in the medium insulation group 42 per cent of the tenants described the noise as 'disturbing' or 'very disturbing'.

'Banging and hammering' was described by both groups as being the most disturbing noise heard. This was presumably noise caused by home repairs and hobbies, since impact noises directly on the floor above were considered separately. Unfortunately we cannot be sure how 'banging and hammering' noises are related to the measurements of sound insulation, since they are usually a combination of air-borne noise (e.g. the noise generated in the room when hitting on a table) and impact noise (e.g. the noise transmitted through the floor via the legs of the table).

The other disturbing noises can be classified either as air-borne noises, e.g. radio, conversation, or as impact noises, e.g. footsteps, moving of furniture. The tenants in top flats obviously are not subjected to impact noises, but for all the other tenants the impact noises were at least as disturbing as the air-borne noises, so we can say that impact sound insulation is certainly as important as air-borne sound insulation.

In all three groups of flats the party walls had an air-borne sound insulation about the same as that of the floors of the high insulation group. Even in this group the noise through the party walls was less disturbing than that through the party floors.

Specification of sound insulation values. In the past the air-borne sound insulation of a wall or floor has, in this country, been given as the average over a given frequency range. Now this is a sufficiently accurate guide in most circumstances and for most constructions whose insulation increases with frequency at a more or less uniform rate. But this average figure can be misleading for some constructions, as it has been shown to be for 9-in. solid and 11-in. cavity walls. We have therefore been forced to abandon this single-figure average and propose instead to specify the insulations, at all the individual frequencies, below which the insulation of a given construction should not fall by more than a specified amount. (This same principle is used in Germany.[3]) Similarly, for impact sound insulation we propose to specify the sound pressure levels, at all the individual frequencies, which should not be exceeded in the room underneath when a standard tapping machine is operated on the floor of the room above.

Applications

It must be accepted that complete sound insulation of party walls and floors is not at present practicable in semi-detached houses and in flats, even if it were desirable —which is far from certain. We have therefore to consider the various lower degrees of insulation that it is possible to obtain in normal practice. The choice of any specific degree of sound insulation as a firm standard to be aimed at in either houses or flats cannot be determined with general validity. For one thing, increased insulation can only be obtained at increased cost and therefore the tenant's desire for a given standard of quietness cannot be divorced from his (or the community's) ability to pay for it. Also, in dealing with degrees of sound insulation we are dealing with degrees of comfort (e.g. risk of disturbance, leading to risk of complaint) which again will vary with circumstances. Thus quantitative assessment must stop short of final judgment on standards which, inevitably, will rest with local authorities or others responsible for housing. All we can do to help those faced with this problem is to correlate certain degrees of insulation with the practical forms of construction that achieve them and with their corresponding gradings in terms of the comfort of the tenants.

Before proceeding with this classification, however, we should review the limitations of our present knowledge. First, the post-war social surveys in houses and flats have been concerned only with local authority tenants, and it may well be that other groups in the community have different requirements. Secondly, the applications are based on the opinions of the majority of the tenants, which still leaves in all cases a substantial minority who differ in their views. For example, although the majority of tenants were not seriously disturbed by noise through their 9-in. solid party walls, we know that it is still a common source of complaint. Thirdly, there are local variations in tenant reactions, as witness (perhaps an extreme example) the reactions of the tenants in our low insulation group of flats. Fourthly, the social survey in houses dealt only with semi-detached houses; in terrace houses with possibly a greater area of party wall and sometimes even with living-rooms adjacent on both sides, the degree of disturbance will have to be investigated separately; it cannot be deduced from present data. Lastly, the social survey in flats dealt with flats of the same plan superimposed one above the other. In, say, maisonettes where the party floors separate bedrooms from living-rooms, the problems may be different, i.e. similar insulation may produce a different level of complaint.

Houses. We have seen that the attempt at improvement in insulation by use of the 11-in. cavity wall has not fulfilled expectations because it does not give an appreciable improvement over the low and medium frequency ranges; to improve the insulation at these frequencies by 5 dB would probably require a solid wall weighing 180–200 lb. per sq. ft., for example, 18 in. of brickwork.

Flats. We suggest two specific grades of insulation for classifying floors and walls, and these two sets of figures for both air-borne and impact sound insulations are given in Figs. 2 and 3 in the Appendix. The first set is called Grade I and corresponds closely to the floor insulation measured in the high insulation group of flats; the second set corresponds to the floor insulation of the medium insulation group and is called Grade II. We can classify the effectiveness of constructions which fall within these two grades, but we must also classify constructions that come below Grade II. It is known that on some housing estates the sound insulation of the flats has been so low as to cause the tenants to petition the local authority concerned, who have been forced to modify the constructions at considerable expense. This level of insulation might be called the 'deputation' level, and it has been experienced at about 8 dB below Grade II. We can conveniently classify the constructions with low insulation as being so many dB worse than Grade II; the nearer they are to 8 dB worse than Grade II, the more chance there is of deputations. (It might be noted that at the lower frequencies the air-borne sound insulation of even Grade I floors is a little lower than that described for walls in houses. This, of

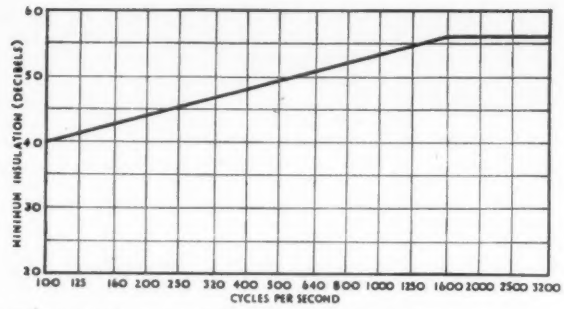


Fig. 1. Airborne sound insulation for house walls

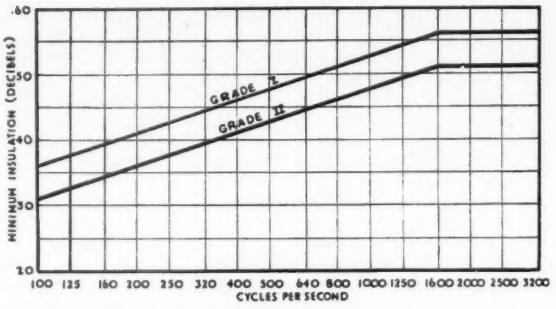


Fig. 2. Airborne sound insulation for walls and floors in flats

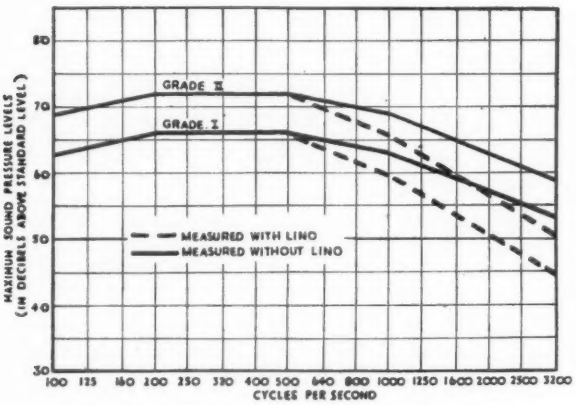


Fig. 3. Left. Impact sound insulation for floors in flats (maximum permissible sound pressure levels)

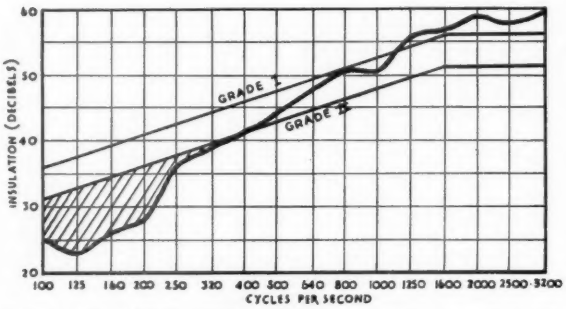


Fig. 4. Above. Airborne sound insulation of floating and pugged wood-joist floors

course, is because 9-in. solid brick walls have in fact a slightly greater insulation than the best floors, i.e. Grade I floors, found in flats.)

As for the party walls, we know that the noise through Grade I floors is more disturbing than the noise through walls having similar insulation. Thus, even if the floors of a block of flats are to be Grade I, it might be permissible to have the walls Grade II, although it would obviously be safer to make them Grade I. (For example, a noisy neighbour heard through a Grade II party wall might be more annoying than a quieter neighbour heard through a Grade I party floor.) If the floors are to be Grade II, then it will probably be adequate to make the walls also only Grade II. (This does not mean that there is no advantage in making the walls Grade I when the floors are Grade II, but in general more benefit is obtained by increasing floor insulation above Grade II than wall insulation.)

The grade of insulation required between adjacent flats should apply to walls and floors between living-rooms and bedrooms; the insulation between other rooms is probably not so important.

Adequate insulation is necessary against both air-borne and impact noises, so a floor should be satisfactory in both respects if it is to meet the requirements of a particular grade.

Briefly, we have for flats:—

Grade I: insulation is such that the neighbours' noise is only as disturbing as several other things.

Grade II: insulation is such that the neighbours' noise is to many of the tenants the worst thing about living in the flats, but at least half of the tenants are not seriously disturbed.

8 *dB worse than Grade II:* 'deputation level'.

Classification of Party Walls and Floors in Flats

The Table is intended as a general guide to the sound insulation grading of the constructions commonly used for party walls and floors in flats; Building Research Station Digests to be issued shortly will deal with the constructions in more detail.

One general point should be made first. Any carpet except the very thinnest will improve the impact sound insulation of a floor so that a Grade II floor for impacts will become a Grade I floor for impacts; a carpet, however, does *not* improve the air-borne sound insulation. And of course the carpet only affects the tenants in the flat underneath and is of no benefit as a protection against impact noises to the buyer of the carpet. A further point to bear in mind is that a carpet should cover the whole floor if it is to reduce all the impact noise.

Walls. 9-in. solid brick or 11-in. cavity brick will give Grade I insulation; so will any solid wall which has a superficial weight of at least 80 lb./sq. ft. It is difficult to generalise about cavity walls other than brick, but two leaves of 3-in. lightweight concrete having a minimum density of 70 lb./cu. ft. and with a cavity of at least 3 in. usually give Grade I. Nearly all cavity constructions whose leaves are at least 3 in. thick of solid material and where the cavity is at least 2 in. wide will give at least Grade II.

Concrete slab floors. Included under this heading are slab floors, 5 in. to 7 in. thick, of reinforced concrete, hollow pot or concrete beams, plastered directly on the soffit. Concrete floors of the trough-soffit type, where the ceiling membrane is only partially in contact with the main slab, do sometimes show improved air-borne sound insulation as compared with the flush-soffit type, but the results to date are rather variable and so the trough-soffit type of concrete floor has not been separately classified.

It is seen from the Table that with a floating wood raft this type of floor is Grade I for both air-borne and impact sound insulation and therefore, of course, the overall classification is Grade I. With a floating screed instead the air-borne sound insulation is Grade I, but the impact sound insulation has been found to vary slightly either side of the dividing line between Grade I and Grade II. The measuring technique for impact sound insulation is not so directly related to the various types of impact noises met with in practice as is the technique for air-borne sound insula-

Table—**Gradings of Walls and Floors in Flats**

Construction	Grading		
	Air-borne sound insulation	Impact sound insulation	Overall
Walls			
9-in. solid brick	I	—	I
11-in. cavity brick	I	—	I
Concrete Slab Floors			
Floor finish:			
(*a*) Wood raft floating on glass wool, rock wool or similar resilient material	I	I	I
(*b*) Concrete screed floating on glass wool, rock wool or similar resilient material; and with hard surface finish, e.g. pitchmastic or thermoplastic tiles	I	I or II (see text)	I or II (see text)
(*c*) As (*b*) but with carpet	I	I	I
(*d*) Wood blocks, or boards on battens, direct on the structural floor	II	II	II
(*e*) As (*d*) but with carpet	II	I	II
(*f*) Hard surface finish, e.g. pitchmastic or thermoplastic tiles direct on the structural floor	II	4 dB worse than II (see example in the Appendix)	—
(*g*) As (*f*) but with carpet	II	I	II
Concrete Floors with Suspended Ceiling			
Floor finish:			
(*a*) Wood raft floating on glass wool, rock wool or similar resilient material	I	I	I
(*b*) Concrete screed floating on glass wool, rock wool or similar resilient material; and with hard surface finish, e.g. pitchmastic or thermoplastic tiles	I	I	I
(*c*) Wood blocks, or boards on battens, direct on the structural floor	I	II	II
(*d*) As (*c*) but with carpet	I	I	I
(*e*) Hard surface finish, e.g. pitchmastic or thermoplastic tiles direct on the structural floor	I	2 dB worse than II	—
(*f*) As (*e*) but with carpet	I	I	I
Floating Wood-joist Floors			
(*a*) With pugging	2 dB worse than II	2 dB worse than II	—
(*b*) No pugging	4 dB worse than II	3 dB worse than II	—
Plain Joist Floors or with Resilient Layer Nailed Through			
(*a*) With pugging	4 dB worse than II	6 dB worse than II	—
(*b*) No pugging	8 dB worse than II	8 dB worse than II	—

tion, and it may be that some of the floors which just fail to reach Grade I for impacts could not be distinguished from Grade I floors by tenants. It is probable that this type of floor can safely be regarded as Grade I overall. With a carpet, the floating concrete screed floor is certainly Grade I overall.

No plain or untreated concrete floor reaches Grade I overall and this type of floor with a hard surface finish may have an impact sound insulation as low as 4 dB worse than Grade II (but see example in the Appendix).

Concrete floors with suspended ceiling. A ceiling suspended from the structural floor by wire hangers improves the insulation and all types of concrete floor with this treatment are Grade I for air-borne sound insulation. The improvement of impact sound insulation is not so marked.

Floating wood-joist floors. The classifications given for wood-joist floors assume that the walls are 4½ in. thick and that the ceilings are of plasterboard with or without a skim coat. If the walls are thicker, e.g. 9-in. solid brick, or very heavy ceilings are used, then the floating and pugged joist floor would be better than the grading given. This is because it is the indirect transmission which limits the maximum obtainable insulation, and reducing the indirect transmission permits higher insulation to be developed.[4]

The floating raft must be quite free from the joists, i.e. the floor-boards must be nailed to separate battens and *not* nailed through to the joists. If the boards (or battens) *are* nailed through, then the floor is no better than a plain floor without any resilient quilt. The pugging may be either on separate pugging boards or direct on the ceiling.

It is seen that a wood-joist floor, even when fully floating and pugged, does not reach Grade II. If the floor is not floating and has no pugging, then its insulation is 8 dB worse than Grade II, and it is this untreated joist floor that has been the main cause of deputations.

Acknowledgments. This work is part of the research programme of the Building Research Board and is published by permission of the Director of Building Research.

The social survey in flats was under the supervision of Mr. P. G. Gray, and that in houses under the supervision of Mr. L. T. Wilkins, both of the Central Office of Information.

Thanks are due to the local authorities and their tenants who willingly made it possible to make measurements at 130 sites, and to the 2,291 tenants who co-operated in the social surveys.

APPENDIX

Air-borne Sound Insulation. For houses, the insulation that should be obtained to be comparable with that of a 9-in. solid brick wall is shown in Fig. 1 and is: 40 dB at 100 c/s, increasing (slope 4 dB per octave) to 56 dB at 1,600 c/s and remaining at 56 dB up to 3,200 c/s.

For flats, Grades I and II are shown in Fig. 2. Grade I is: 36 dB at 100 c/s, increasing (slope 5 dB per octave) to 56 dB at 1,600 c/s and remaining at 56 dB up to 3,200 c/s. Grade II is the same shape as Grade I but is 5 dB lower at all frequencies. To satisfy the particular grade, the insulation of the construction must be such that any deviations in an unfavourable direction should not exceed 1 dB when averaged over the whole frequency range. When the mean unfavourable divergence from Grade II does exceed 1 dB, then this mean divergence is given, i.e. x dB worse than Grade II.

Impact Sound Insulation. Grades I and II are shown in Fig. 3, and are the sound pressure levels in octave bands which must not be exceeded when the tapping machine is operated on the floor above. The figures

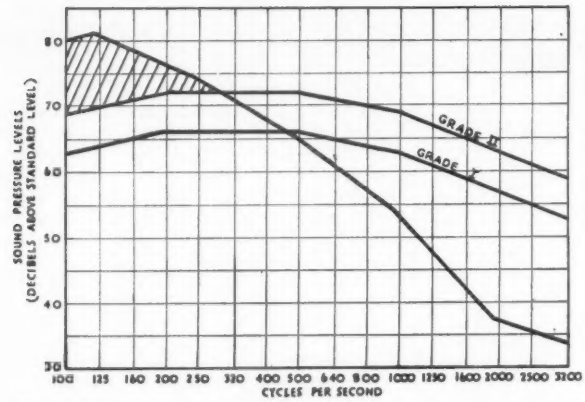


Fig. 5. Impact sound insulation of floating and pugged wood-joist floors

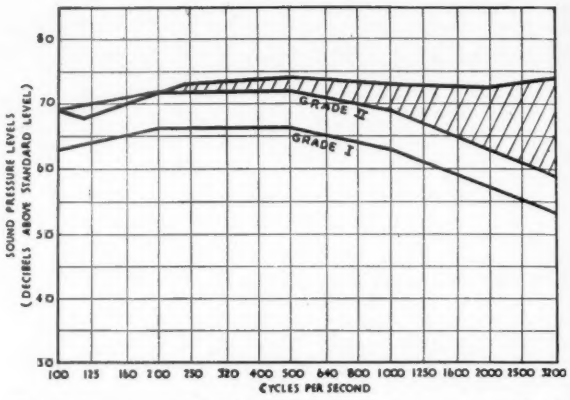


Fig. 6. Impact sound insulation of concrete floor with hard finish

are: Grade I, 63 dB at 100 c/s increasing (slope 3 dB per octave) to 66 dB at 200 c/s, remaining at 66 dB up to 500 c/s, falling (slope 3 dB per octave) from 66 dB at 500 c/s to 63 dB at 1,000 c/s, and then falling (slope 6 dB per octave) from 63 dB at 1,000 c/s to 53 dB at 3,200 c/s. Grade II is the same shape as Grade I but 6 dB higher at all frequencies. When measured with linoleum on the floor, then the Grades are the same shape as above up to 500 c/s but at higher frequencies are: Grade I, 66 dB at 500 c/s, falling (slope 6 dB per octave) to 60 dB at 1,000 c/s, and then falling (slope 9 dB per octave) from 60 dB at 1,000 c/s to 45 dB at 3,200 c/s; Grade II as for Grade I but 6 dB higher at all frequencies. The same conditions for divergencies in the unfavourable direction apply as for air-borne sound insulation.

General. The measurements are made in accordance with the provisional international method.[5] The results are corrected to a reverberation time of 0·5 second in the receiving room. The impact sound insulation figures are decibels above the reference sound pressure level of 2×10^{-4} dyne/sq. cm. Brass hammer-heads are used.

Examples. Two examples may help to illustrate the working of the Grades. Fig. 4 shows the air-borne sound insulation of a typical floating and pugged wood-joist floor. It is seen that its insulation is worse than Grade II at the lower frequencies (the shaded area on the figure). This means that low frequency noises (e.g. the lower notes of musical instruments, the fundamental frequencies of the voice) will be louder through this floor than they were through the floors of our medium insulation group of flats and the assumption (which is basic to the new system of classification) is that the increased disturbance due to these louder low-frequency noises will not be compensated by the good insulation at the higher frequencies. The shaded area when averaged over the 'base' of the whole frequency range is equal to 2 dB, and this floor is therefore classified for air-borne sound insulation as 2 dB worse than Grade II.

The impact sound insulation of this same floor is shown in Fig. 5 and again it is the insulation at the lower frequencies which is deficient.

Fig. 6 shows the impact sound insulation of a plain concrete floor with a pitchmastic finish, and it is seen that in this case the insulation is worse than Grade II over most of the frequency range but particularly at the high frequencies. However, there are sufficient impact noise sources which are hard, e.g. hard shoes, to justify retaining the same classification system for this type of floor.

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3. *German Standard,* DIN 52211 (September 1953).
4. Purkis, H. J., and Parkin, P. H. *Acustica,* **II,** (6), 1952.
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Architectural Competitions

THE COUNCIL, on the recommendation of the Competitions Committee, have approved certain revisions in the confidential memorandum of advice issued to Assessors, entitled 'Directions for Assessors'. These are aimed at shortening the time taken in holding a competition and encouraging the holding of two-stage competitions in suitable cases for large-scale projects. It is clear from experience in the last few years that in the case of many projects which would have been eminently suitable for competitions, promoters have not felt able to adopt the advice given because of the extra time which a competition involves over and above the direct appointment of an architect. It is therefore suggested that a terminal date for application for conditions should be included in competition announcements in the technical press and that not more than four weeks thereafter should be allowed for the submission of questions.

Assessors are advised that it is not necessary for each question to be answered separately and that they should ignore irresponsible and frivolous questions. By condensing into one comprehensive paragraph answers to questions dealing with similar items time will be saved in the preparation and issue of the answers document. If, however, this procedure is adopted, competitors should be notified of the fact in the conditions of the competition.

It is also suggested that time might be saved by issuing duplicated instead of type-set answers. If, however, unforeseen delay occurs in answering questions a compensating extension to the original sending in date should be made and included in the answers document. It will be for Assessors to judge the shortest reasonable time for the preparation of competition schemes, depending on the nature and size of a particular competition.

As competitors are always anxious to

know when the Assessor's award will be published, it is suggested that immediately an Assessor has judged the time he will require to complete his work he should advise the promoters to notify competitors of the approximate date of the publication of the award by announcements in those technical journals which published the original invitation advertisements.

Two-Stage Competitions. It is, however, advised that in a suitable competition for a large-scale project and in order to curtail the labour involved, the Assessor should recommend the holding of a two-stage competition with the object of eliminating in the first stage designs which do not solve the problem. He should then select a limited number of competitors, say, not less than six and not more than ten, to take part in the second stage. In the first stage diagrammatic sketches only should be required not exceeding 1/32nd scale and sufficient only to indicate the main lines of the scheme. In the second stage the selected competitors should be required to develop their drawings to the extent normally required in competitions.

In judging the first stage Assessors are advised to be especially careful to preserve the anonymity of the selected competitors.

It is suggested that a substantial first premium should be awarded which would merge in the successful competitor's commission, but that instead of offering second, third and fourth premiums, this part of the prize money should be divided equally in the form of an honorarium to each of the other competitors selected to take part in the second stage.

Practice Notes

Edited by Charles Woodward [*A*]

IN PARLIAMENT. Building Bye-laws (Ventilation). Asked whether he was aware that houses are now being built with three bedrooms, not one of which has a fireplace, ventilating brick or other means of permanent ventilation; and what considerations induced him to sanction the necessary change in bye-laws, the Parliamentary Secretary to the Ministry of Housing and Local Government replied:—Yes, Sir. It is now considered that adequate windows and a door are sufficient.

Asked further whether he was aware that, with doors and windows closed, and with no chimney or ventilation of any sort in a room, there is considerable danger if two or three people are sleeping there, the Parliamentary Secretary replied:—In many cases the householder stops up the air brick and whatever advantages there are are lost. This recommendation was based upon the advice of the majority of the Advisory Committee on Building Bye-laws, which included a member of the Royal Sanitary Institute. (22 June 1954.)

New Buildings (Air-Raid Shelters). In answer to a question as to what provisions exist for requiring or encouraging building owners, whether private individuals, limited companies or public institutions, to incorporate reinforced basements in the buildings which they put up so as to serve as air-raid shelters in the event of hostilities; how many buildings with such reinforced basements have been erected in the last two years for which figures are available; and what provisions are made as to payment of part or all of any additional cost which may be involved in reinforcing the basements of such buildings, the Home Secretary replied:—There are at present no powers to require the incorporation of reinforced basements in new buildings, and there is no provision for the payment from public funds of any part of the additional cost where such precautions are incorporated voluntarily by a developer.

Applicants for building licences have in suitable cases been invited by my right hon. Friend the Minister of Works to incorporate such structural precautions, but I am unable to say how many buildings with reinforced basements have been erected in recent years.

The desirability of having a general requirement to incorporate structural precautions in new buildings has been considered from time to time, both by the late Government and by the present Government, and the matter will be re-examined as part of the general review of Civil Defence plans which is now proceeding. (24 June 1954.)

Ministry of Education. Asked the meaning of the expression, 'Secondary modern and modern streams in bilateral and multilateral', used under the heading of 'Type of School or Department', on page 76 of the Report of her Department for 1953, the Minister of Education replied:—This expression refers to pupils in secondary modern schools and the pupils in bilateral or multilateral schools who are following courses broadly similar to those normally provided in secondary modern schools. (24 June 1954.)

Reconstruction Works (Architectural Standards). Asked what action he proposes to take in view of the low architectural standards of the reconstruction of central urban areas now taking place to which attention has been drawn by the Royal Fine Art Commission, the Parliamentary Secretary to the Ministry of Housing and Local Government replied:—My right hon. Friend believes that the Commission's concern arises mainly over the rebuilding of the City of London; and he is already in touch with the Commission, the City Corporation, and the London County Council. He is informed that arrangements were instituted earlier this year for the City's planning consultants, Dr. Charles Holden and Professor Sir William Holford, who is also a member of the Commission, to meet regularly with officers of the Corporation and of the County Council. The purpose of this is to consider the general form of development for each of the main building units in the war-damaged areas of the City, as well as to deal with individual proposals. Under this procedure, close and early collaboration will, my right hon. Friend understands, be maintained with the Commission on questions of design in the more important cases. These arrangements will he hopes do much in the future to remove the Commission's present apprehension. (29 June 1954.)

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. Housing Subsidies. Circular 51/54 dated 29 June refers to the Report of the Minister in connection with housing subsidies under the Housing Acts, 1946 and 1952. The Report contains the range of subsidies proposed to come into operation from 1 April 1955, and will form the subject of an Order which will require an affirmative resolution of the House of Commons.

The Report is obtainable at H.M. Stationery Office, price 4*d.* net.

Development Plans Direction, 1954. Circular 45/54 dated 25 June refers to a Direction given to all local planning authorities in connection with changes in an approved Development Plan. The Circular and Direction can be obtained at H.M. Stationery Office, price 3*d.* net, and the text of the Direction is as follows.

The Town and Country Planning (Development Plans) Direction, 1954. The Minister of Housing and Local Government in exercise of the powers conferred on him by articles 5, 6 and 8 of the Town and Country Planning General Development Order, 1950, hereby directs as follows:—

1. A local planning authority is hereby authorised to grant permission for development of land which does not accord with the provisions of the development plan in any case where in their opinion the development authorised by the permission, if carried out in accordance with the conditions, if any, to be imposed, would neither involve a substantial departure from the provisions of the plan nor injuriously affect the amenity of adjoining land.

2.—(1) In any other case, before granting permission for development which does not accord with the provisions of the development plan, a local planning authority shall send to the Minister a copy of the application made to them and of any plans and drawings which accompanied it, together with a statement of the reasons for which they desire to grant the permission and of the conditions, if any, which they propose to impose, and shall not grant permission for that development until the expiration of 21 days (or such shorter period as he may in any particular case appoint) from the date on which such copy is received by the Minister. (2) Failing any direction from the Minister within the said period the local planning authority shall be authorised to grant permission for that development at the expiration of that period.

3. It shall be a condition of the authorisation given by the preceding paragraphs of

this direction that where the permission is to be granted by a council to whom functions of a local planning authority are for the time being delegated, the concurrence in writing of the local planning authority shall be obtained before the grant of such permission, and in a case falling under paragraph 2 shall be notified to the Minister with the other matters referred to in that paragraph.

4. As soon as may be after granting any permission for development which does not accord with the provisions of the development plan, the authority shall furnish to the Minister a copy of such permission.

ROYAL INSTITUTION OF CHARTERED SURVEYORS. The following notice appeared in the Institution's Journal for June 1954:—

Quantity Surveyors' Fees. Permanent Non-Traditional Housing Schemes. During the past year, negotiations with the Ministry of Housing and Local Government have taken place on the subject of quantity surveyors' fees in connection with permanent non-traditional housing schemes. The Quantity Surveyors Committee now wish to make clear the position, in the light of these discussions.

From the negotiations it became evident that, owing to the wide divergence of schemes of permanent non-traditional houses, both in regard to the types and numbers of houses, and the substantial variations in the services which quantity surveyors have been called upon to render, it would be impracticable to agree upon a scale which would be fair in all cases.

It is desired, however, to point out that, as the Institution has already informed a number of members, the Ministry of Works' scale, which is reproduced below, is considered to be appropriate where it covers all the quantity surveying services required for any particular scheme:—

'Measuring works executed, preparation of account, including pricing and agreement with the contractor:

2½ per cent. on foundations except where the depth of each house is the same and does not require re-measuring.

1½ per cent. on all site works within the curtilage of the buildings.

2½ per cent. on variation additions.

1½ per cent. on measured omissions.

2½ per cent. on cost variation items excluding bus hire (if any).

Valuation and *checking bus hire* to be charged on a time basis.

Subsistence rates and travelling expenses as for temporary housing.'

DUSTBINS. The question of who is to pay for providing a dustbin arises periodically according to the activities of the local council. In a recent case the landlord was ordered by the council to supply a dustbin. The rent of the house was 7*s.* 9*d.* per week out of which the landlord had to pay 3*s.* 4*d.* a week for rates. The landlord had spent about £11 per annum on repair of the property, which left him 3*d.* a week for himself.

The landlord appealed against the order to supply a dustbin and the magistrates by a majority allowed the appeal.

NATIONAL FEDERATION OF TERRAZZO-MOSAIC SPECIALISTS. The Federation have drawn up a Schedule of Daywork Charges for the Terrazzo-Mosaic industry. The percentage rates cover head office supervision, workmen's compensation, third party insurance, National Health and Unemployment insurance, overheads and profit.

The items included in 'Labour', 'Materials', and 'Direct Charges' are defined and the rates are as follows.

(*a*) For work executed during the progress and up to practical completion of a terrazzo contract 66⅔ per cent on labour and 20 per cent on materials and direct charges.

(*b*) For work executed after the practical completion of a terrazzo contract or on jobbing work 75 per cent on labour and 20 per cent on materials and direct charges.

(*c*) Where carborundum grinding machines are used on daywork the rate is 45*s.* per day or part-day. Petrol and oil used in the machines is charged under direct charges and electric current is to be supplied to the terrazzo contractor free of charge.

The Schedule is obtainable at the Federation's office, Queen's House, Leicester Square, London, W.C.2.

LONDON COUNTY COUNCIL. Means of Escape in case of Fire. The principles for the guidance of applicants in respect of means of escape in case of fire, published by the London County Council, are obtainable from Staples Press, Ltd., Mandeville Place, W.1, or from the County Hall, Westminster Bridge, S.E.1, price 6*d.*, postage extra.

The principles are in course of revision and when approved by the Council will be available for purchase.

It is understood that the Council is considering the issue of regulations governing the submission of applications under the London Building Acts, which will give complete guidance to architects making such applications.

The Franco British Union of Architects

25th Annual General Meeting, 23–26 May 1954

THIS YEAR it was the turn of our French members to visit England: the district they chose was Cornwall and Devon. But in the short time available this request had to be reduced to places 'en route' from Southampton or accessible in a day's journey from the headquarters at Exeter. After meeting the French delegation at Southampton the first stop was at Salisbury: the day was grey but fine and our French friends were enchanted by the grey-green tones of the cathedral and the charm of the old buildings surrounding it. Continuing our journey after lunch, a stop was made at Stonehenge and thence, in gathering cloud and rainstorms, on to Sherborne. Here attention was naturally concentrated on the beautiful abbey, which had particular interest for the visitors as being a fine example of a mediaeval building quite different from those of the same period in France. From Sherborne to Exeter we had a foretaste of what Devon can do in the way of rain, which was to follow us for the rest of the meeting.

Next day an early start was made for a tour of North Devon and part of Cornwall via Crediton, Barnstaple and Bideford to Clovelly for lunch. Clovelly, in a steady downpour, with the hills covered in mist to sea level, would seem to be depressing, but, rather to our surprise, our visitors remained cheerful and scrambled and slid down the cobbled street to lunch at the Red Lion like schoolboys on holiday.

After lunch we climbed up to the waiting motor coach and drove on, via Bude, to the next stop, Tintagel. Here it had been planned to have tea on arrival, but, in spite of wind and rain, most of the visitors dashed off to see the remains of King Arthur's castle. The grey sky, wind, rain and surging sea made an impressive picture only marred by the recent building development on the adjacent hillside. At last, when tea had been served to all, a wet but still cheery crowd resumed the journey across the moors to Exeter via Launceston, Tavistock and Moretonhampstead.

On the third day the programme included a visit to Plymouth, where some time was spent on visits to the new housing estates and in looking at the reconstruction work in the central area. In the afternoon a visit was paid by kind permission of Lord Morley to Saltram, a fine 18th-century country house, followed by a halt at Totnes for tea and return to Exeter for the Annual General Meeting and official dinner. Here the timetable rather broke down and the meeting did not take place until after dinner. It was, however, agreed that Mr. Goodhart-Rendel, the President Elect, should preside at the dinner as arranged. Those present included Mr. Goodhart-Rendel (President Elect) in the Chair, M. Schneider (immediate Past President), Mme and Mlle Schneider, M. Rene Varin, Cultural Counsellor of the French Embassy in London, M. and Mme

Boutterin, M. and Mme Barade, M. and Mme Bodecher. Lt.-Col. O. Campbell-Jones, Mrs. Campbell-Jones, Mr. P. Campbell-Jones, Prof. H. O. Corfiato, M. and Mme Duflos, Mr. and Mrs. W. A. Eden, Mr. and Mrs. Enthoven, M., Mme and Mlle Fabre, Mr. Glanville, Mr. and Mrs. S. Holland, Mr. and Mrs. Houfe, M. and Mme Laprade, Miss H. Martin, M. and Mme Rimbert, M. and Mme Tournon, Lt.-Col. Cart de Lafontaine (Secretary-General) and Miss Cart de Lafontaine and Mr. G. A. W. Brandreth (Hon. Sec. British Committee).

The Annual General Meeting followed at 10 p.m. After the minutes of the previous meeting had been read and confirmed, members stood in silence for a minute as a tribute to the memory of the late Sir Banister Fletcher, a founder member of the Union; Mr. Henry M. Fletcher, a Past President; MM. Bellemain, Bruel and Chirol. M. Chirol was the architect in charge of the reconstruction of Rouen Cathedral.

Mr. H. S. Goodhart-Rendel, M.A., Mus.B., P.P.R.I.B.A., was elected President for the year 1954–55; M. Boutterin, past Grand Prix de Rome, was elected Vice-President, 1954–55. The following candidates were elected members of the Union: M. Fabre, M. Vernon, S.A.D.G., M. Vergnolles, S.A.D.G., Sir Alfred Bossom, M.P., J.P. [*F*], Mr. Howard V. Lobb, C.B.E. [*F*], Mr. R. S. Nickson [*F*], Mr. S. P. A. Holland, Dip.Arch. [*A*].

The main items on the agenda were: The approval of the conditions for a travelling studentship of £75 for a young French architect to visit England for a study of old and new buildings for a period of five weeks. M. Schneider reported that conditions had now been agreed by both the French and British Committees and that M. Frottier, S.A.D.G., the first Bursar, would visit England during this summer.

Professor Corfiato reported the result of this year's annual competition between students of the École Nationale des Beaux Arts of France and those of British schools on a programme set by the 'Professeur de Théorie' for 'A Museum of Modern Art'. The British prizewinners were: 1st, Mr. G. Rey, Oxford School of Architecture; 2nd, Mr. J. W. Proven, Sheffield University, Department of Architecture; 3rd, Mr. K. J. H. Brown, Bartlett School of Architecture, University of London; Hon. Mentions: Mr. J. H. Muir, Brighton College of Art; Mr. F. Woodhead, Sheffield University, Department of Architecture. As in previous years, the premiated designs, both French and British, will be shown in Paris and at the R.I.B.A. and, this year, the drawings will also be shown in Manchester and at some of the other provincial schools.

Mr. Brandreth, Hon. Secretary, British Committee, reported that about £57 had been subscribed by British members to the Bursary Fund, including a donation of £10 10*s*. from Mr. and Mrs. Pott, in memory of the late Mr. Henry M. Fletcher. Continuing, Mr. Brandreth said an invitation had been received from M. Warnery, architect in charge of the Palace of Fontainebleau, for a British student to spend two weeks at the Palace during this summer as a vacation course. This offer had been gratefully accepted and the winner of this year's F.B.U.A. competition, Mr. G. Rey, will spend the last two weeks of July at Fontainebleau.

The next annual meeting of the Union will be in France, probably about Whitsuntide, either in the Château country of the Loire Valley or the Périgord district.

Next morning, the last day of the meeting, was free for our visitors to see the city of Exeter. After luncheon the French members, accompanied by the Secretary-General and Miss Cart de Lafontaine, returned to Southampton in time to sail for France.

A.B.S. Annual General Meeting

THE ANNUAL GENERAL MEETING of the Architects' Benevolent Society was held at the R.I.B.A. on 5 May. Mr. Howard Robertson, M.C., A.R.A., S.A.D.G., President, was in the Chair.

The President of the Royal Institute of British Architects was elected President of the Society. Mr. Robertson was elected a Vice-President to take effect from the termination of his Presidency, and Mrs. Montgomery [*Hon. A*] was elected a Vice-President in recognition of her generosity and help to the Society. The Honorary Officers, Vice-Presidents, Honorary Auditors, and Council were elected for the year 1954–55.

The Honorary Secretary, Mr. Howard Lobb, C.B.E., in presenting the Annual Report, said:

'The number of cases we have dealt with during the year has increased considerably, and on that account we have been especially glad of the help we have received from the local Societies of Architects. I am very pleased to report that during the year we have been able to secure Local Representatives in almost every area in the country, and it is gratifying to see many of them at this meeting. The interest which they are arousing in their areas in the work of the Society is very helpful.

'We are very grateful to the architectural periodicals for recording our activities during the year, and for the advertising space they have given us. We are also grateful for help of the same kind in the Year Books of the R.I.B.A. Allied Societies. I am sure you will agree that the more voices there are speaking for us the better it is for the activities of the Society.

'We have lost many subscribers through death during the year, and their support will be missed. We hope therefore for many new subscribers, and it may well be that the forthcoming competition for the Old People's Homes will attract them. We hope shortly to be able to announce details of this competition. Purchase of the site, which is in Surrey, is now nearing completion. We shall then be able to go ahead, but before reaching anything like finality we shall need more money.'

The Honorary Treasurer, Mr. H. S. Goodhart-Rendel, in presenting the Accounts and Balance Sheet, said: 'We are getting a little more money, but that only balances printing expenses and salaries, so we are just not worse off. This year we have had better luck with legacies than the year before, but we have had about £70 less in Capital Donations. We build up our investments from legacies and capital donations so as to be sure we can pay our pensioners, but we still really depend mostly on annual subscriptions and donations. The Chairman of the Case Committee has reported that last year we have not been able to give as much as we wanted to give in a good many cases. One says this every year, but we do need more money, and, when we get it, we seem to need still more.

'There was a bad nightmare hanging over us about repaying income tax on insurance commission for 1953–54; we might have been liable for about £3,000. The sum of £825 6*s*. has been paid, and that is practically all that will have to be paid.

'As you have heard, the competition conditions will soon be out, and we want to go ahead as quickly as we can. We shall want more money, and I hope that the actual beginning of the Homes scheme will bring it, but it will not do so if we relax our efforts. We realise that these few homes will be a nucleus of a larger long-term programme. I would like to emphasise, as every year passes, how necessary these homes are.'

The President, in moving the adoption of the Annual Report, Statement of Accounts and Balance Sheet, said: 'I must first allude to the sorrow we have all felt at the death of Sir Banister Fletcher, and our appreciation of his past generosity, shown on many occasions, and of the legacy of £2,000 which he has bequeathed to found a pension in memory of himself, his father and his brother.

'Mr. Goodhart-Rendel has spoken of the Homes Competition. He is one of the three Assessors and I feel sure we shall get a good design. I hope there will be a full entry for the competition from subscribers to the A.B.S.

'The Ball seems to grow in power every year; the proceeds from the 1953 Ball were £2,300. This year the Ball is to be held at

Grosvenor House, because the Dorchester Hotel is now too small to hold it. Its success is very largely due to the efforts of Mr. Epril, Mrs. Wolfe and the Committee. Anybody who has had experience of their work realises that it is a personal success. It could not achieve such magnificent results without their untiring efforts, and our thanks to them should be recorded.

'I have another pleasurable duty in offering our thanks to Mrs. Montgomery for providing us with a free stand at the Building Exhibition, in accordance with her family tradition, and for helping the Society in every way she can. We are specially grateful to her for a donation of £900. Mrs. Montgomery is proposed as a Vice-President of the Society in succession to her husband and father-in-law. She will be a great asset as a Vice-President and a welcome addition to our forces.

'Mr. Lobb has mentioned the work of the Local Representatives, their garden parties, cinema shows and other methods of adding to our funds. The Hertfordshire Chapter is proposing to organise a handicraft section with an exhibition and sale in aid of the A.B.S. These activities are tremendously important, because they show that the tree is growing all the time. The Birmingham Society sent out a personal appeal to their members which bore much good fruit. The Essex, Cambridge and Hertfordshire Society inserted an Appeal Slip in their Year Book. Generous thanks are due to all those who have done such good work. Individual members also have had good ideas. One member sent a donation in celebration of his seventieth birthday to provide a gift of £2 to each pensioner; the pensioners were delighted and wrote most appreciative letters. It is this kind of human touch, I think, which earns more than ordinary gratitude from recipients. Another member, when the total of his contributions approaches the next round figure, makes it up to that with a special donation; he has already done this several times. All these thoughts show personal interest apart from generosity.

'Unfortunately we still need more money from the architectural profession—more money for the aged, for the sick and for those who cannot support themselves. Those who read the case histories do not sleep very well at night. I hope everyone will respond by giving something to help the Society carry out its good work.'

The Annual Report, Statement of Accounts and Balance Sheet were adopted, and a vote of thanks was passed to the Secretary and Staff.

Book Reviews

Byzantine Art, by *D. Talbot Rice*. 2nd ed. (Pelican books, A287.) 7¼ in. 272 pp. incl. 2 pls. (maps) + 64 pls. and pp. of illus. text plans. Penguin Books. 1954. 3*s.* 6*d.*

The period of history with which this book is concerned covers over a thousand years and illumines with magnificent clarity those ages which Victorian writers have dubbed as Dark. Even a glance at the sixty-odd pages of illustrations should be enough to convert the neophyte to the belief that the Byzantine heritage was by no means the dying relic of a decadent Roman Empire, but the primary cultural source of mediaeval civilisation.

This book was first published by the Oxford University Press in 1935, and has now been revised and amplified to include the results of more recent research. For only 3*s.* 6*d.* the student can now obtain the distilled essence of Byzantine scholarship in the fields of mosaic, painting, sculpture, metalwork, textiles, ceramics and so on. It is written in so easy a style that the reader may not realise how concentrated the potion is.

The twenty pages devoted to architecture are, perhaps, the least helpful, because the illustrations are so inadequate. The outstanding feature of Byzantine architecture, it will be realised, is the covering of a square space with a dome. And yet if you look at the plans of the various buildings which illustrate the text, you will find only one (a typical church on Mount Athos) which provides any indication of how the dome is integrated into the structure. There are no sections, and the omission of scales to give some idea of relative size is, to the student of architecture, most regrettable. To some extent compensation is to be found in the clear exposition in the text, which must place the writings of Professor Talbot Rice next to Lethaby's in any student's list of essential reading. CECIL STEWART [F]

Paris, by *Martin Hürlimann*. 9¾ in. 16 + (16) pp. + pls. and pp. of illus. Thames & Hudson. 1954. £1 1*s.*

One hundred photographs of Parisian buildings and townscape, short historical notes on each, three colour plates and an introductory essay make this book. The essay is mainly harmless and the notes are adequately done, but the pictures are really beautiful—some are masterpieces. J. C. P.

Decoration and Furniture. Vol. ii: **Principles of Modern Design,** by *Bruce Allsopp*. (The Architect's library *series*.) 11 in. × 8½ in. xvii + 205 pp. + pls., some col'd. Pitman. 1953. £3 10*s.*

This is a very good book. It is written with admirable good sense, clearly, and in a pleasant style. Every student of architecture or interior design ought to read it and none should be deterred by its poor appearance and line illustrations (which are not by the author, and some of which are, obviously, intended to be funny). There are, however, some excellent photographs: but too little modern furniture and decoration is illustrated, and of that too much is second-rate.

The book is intended to treat of the principles of interior design and Mr. Allsopp's conception of them seems to be sound and well expressed, whatever he is discussing—whether it be the principles of formal design, fashion and taste, finishes, new materials, pictures and sculpture, artist-craftsmen and tradesmen, period decoration and the use of antiques in modern rooms, or redecoration.

The title is slightly misleading, in that it does not deal with the principles of *designing* furniture, but rather of selecting it.

A large part of the book is devoted to the use and effect of materials, with a chapter on wood which goes rather beyond a discussion of general principles and in which, although the main argument is sound, there are some questionable statements and implications. It is not made clear, for example, that the mahogany of a hundred and two hundred years ago, 'Spanish' and Cuban, is now almost unobtainable, and differs more from what we now put up with than woollen cloth from hessian. Mr. Allsopp's strictures on the dullness of teak suggest that he has not seen what the best Danish designers can make of it (some of whose work he ought surely to have illustrated); and he remarks that sprayed cellulose 'is easily damaged by heat and damp' and is 'a poor finish for good timber', whereas in fact good modern cellulose finishes are more resistant to such damage than anything except an oil polish (which is not mentioned) and can give a most delicate surface quality.

But these are specialist criticisms of particular defects which do not detract from the value of the book as an exposition of general principles. It deserved a better fate than to be produced in such a fruitlessly expensive form. DAVID PYE [A]

The Old Churches of York, *G. W. Oddleshaw*, editor. [Photographs by] members of the *York Photographic Society*. 8½ in. (4 + 4) pp. + (16) pp. of illus. S.P.C.K. 1954. 2*s.* 6*d.*

Although only slight, this pictorial introduction to 17 of the 20 or so York churches and their treasures, ranging in date from the middle eleventh to the late eighteenth centuries, will be of use not only to the potential visitor but to the student of church architecture everywhere. Views of architectural details and fittings help, and a short historical sketch by Canon Addleshaw gives a further glimpse of the riches of the city. A sketch plan of York showing the positions of the buildings would have been helpful. H. V. M. R.

The Mechanics of Engineering Soils, by *P. Leonard Capper* and *W. Fisher Cassie*. (Spon's Civil Engineering *series*.) 2nd ed. 8¾ in. 315 pp. text diags. Spon. 1953. £1 5*s.*

The original edition of 1949 is now revised, and the results of the last four years' research into soil mechanics have been incorporated. The authors have rewritten, among others the sections on shearing resistance and bearing capacity, and added one on soil suction. The diagrams have been improved on, the bibliography extended, and the index reset in a cleare type.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts. Telephone: Garston 2246.

The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow. Telephone: Busby 1171.

The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks. Telephone: Princes Risborough 101.

The Director, The British Standards Institution, 2 Park Street, London, W.1. Telephone: Mayfair 9000.

The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1. Telephone: Museum 5400 (10 lines).

The Director, The Scottish Building Centre, 425–7 Sauchiehall Street, Glasgow, C.2. Telephone: Douglas 0372.

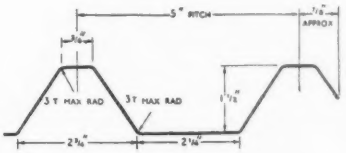
Mix Design and Quality Control of Concrete. This was the subject of a symposium organised in May by the Cement and Concrete Association, and the following points are extracted from a technical summary of the proceedings, which evidently aroused great interest as the average attendance was 475 at each session.

In this country it seems to be generally accepted that the essential requirement is that the mix proportions should be selected to make the best use of the available supplies of aggregate. According to Abram's water/cement ratio 'law', the compressive strength of concrete at any age depends primarily on the water/cement ratio of the mix. Although the richness of the mix and the type and grading of the aggregate also affect the compressive strength, these factors need not normally be considered unless the concrete is to have a comparatively high compressive strength.

The development of mix design and control methods allows a specified compressive strength with leaner mixes, but a warning was given against the danger of accepting the cube test as the only criterion of quality; durability and impermeability are important. It was suggested that these two properties might be overlooked in the desire for leaner mixes and that they could be safeguarded only by having a concrete with a minimum cement content, although the richer mixes used in structures erected several years ago did not save many of them from serious deterioration.

Regarding gap-graded and continuously-graded aggregates, the opinion was expressed that concrete of similar properties could be made with either, and that it should be possible to combine any aggregates complying with B.S.882 to make good concrete. But concrete made with gap-graded aggregates was more liable to segregate, and it should only be used where the workability is suitable for compaction by vibration and where a high degree of quality control is to be exercised.

The suggestion was challenged that in cube tests a small stated percentage of results should be expected to fall below the specified minimum value; the challengers said that any concrete represented by a cube result which did not come up to the specification requirement should be cut out; others said that this was often impracticable and even undesirable where the cube making and testing were suspect; the problem should be faced when specifications are drafted and not left to a site meeting when the first cube fails to reach the required minimum. In this connection the method of checking the quality of concrete by non-destructive testing is of interest, whereby the velocity of an ultrasonic pulse through the concrete is measured.



Section showing the profile of the aluminium 'Industrial' sheet

It seemed to be generally agreed that where control methods were applied according to the requirements of the job there was a definite saving in the overall cost of the work, but it was not always clear when it would be profitable to apply particular techniques. A high standard of quality could be obtained on the small jobs by introducing ready-mixed concrete or by the use of precast concrete products; nevertheless a high degree of control could be achieved if the amount of water added at the mixer was based on a trained mixer driver's assessment of the workability of the concrete.

Although it was perhaps inevitable that many problems should remain unsolved the discussions showed where further research or attention should be directed; devices were needed to measure the workability of concrete while it was still in the mixer, to measure the water/cement ratio of fresh concrete and to determine the degree of compaction of concrete after it had been placed in the moulds. There was a need for wider application throughout the industry of existing knowledge such as that presented to the symposium.

A New Aluminium Sheet. For roofing industrial buildings aluminium is a useful material on account of its well-known qualities of lightness, reflectivity and low thermal emissivity, its resistance to atmospheric attack and independence of applied protective coating. But if the most is to be made of these qualities roofing sheets need to be specifically designed for industrial building use, and to this end experimental work has been carried out by the Aluminium Development Association and Aluminium Laboratories Ltd., the aim being to design a corrugated roofing sheet strong enough to bear the concentrated weight of a maintenance man without local buckling of the corrugation.



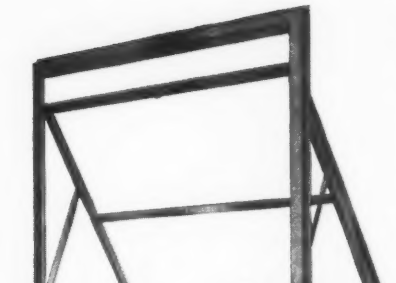
The Northern Aluminium Company's 'Industrial' sheet, used as roofing

The profile finally chosen is an asymmetrical section with deep straight-sided corrugations at 5-in. pitch, the narrow crests being designed to resist denting by a man's boots, while the width of the troughs allows surface water to be shed quickly.

The new sheet is called the 'Industrial' and is made of pure aluminium alloyed with 1¼ per cent of manganese. This gives the material sufficient strength and stiffness to span over widely-spaced purlins, and it can bear without damage a load of 200 lb. on a 5-in. square as specified by the Code of Practice CP3, Chapter V. The standard thickness is 20 SWG (0·036 in.), but 22 SWG (0·028 in.) and 18 SWG (0·048 in.) can be supplied, the 22 SWG being perhaps suitable for side cladding. A side lap of only one corrugation is necessary for the roofing sheets.

Industrial sheet is normally supplied in lengths of 6, 7, 8, 9, 10, 11 and 12 ft. As made by the Northern Aluminium Company the 'Industrial 5' sheet is 26¾ in. wide overall with five whole pitches, and the 'Industrial 6' sheet is 31¾ in. wide with six whole pitches, the respective effective widths being approximately 25 and 30 in. For general purposes, bearing in mind wind and snow, the maximum purlin spacing recommended for the 20 SWG sheet is 9 ft., which will limit the deflection to one-ninetieth of the span.

The Northern Aluminium Co. Ltd. of Banbury, Oxfordshire, have issued a booklet describing Noral corrugated sheets.



Messrs. Crittall's projected window. The supporting arms fit into the vertical sections of the frame

Projected Windows. One advantage of top-hung ventilators is that when open they do not let in rain, except the little that may be blown in through the open sides by a lateral wind, but a slight disadvantage is that the upper parts of the rooms are not ventilated as fully as those lower down the ventilator, on account of the acute angle made by the ventilator with its frame.

As will be seen from the accompanying illustration the projected window overcomes this difficulty by allowing the top ventilator to slide down as it opens, thus leaving a clear rectangular airway at the top of the frame. This arrangement would possibly let in rain through the top, as a double-hung sash does, although no doubt the lintel would prevent this, if the window were set in. In similar manner the inward-opening bottom ventilator slides up as it opens, giving a clear airway at the bottom of the window.

The steel arms of the ventilators fit into the vertical sections of the frame and are out of sight when the ventilators are closed. Spring-loaded brass shoes are fitted at the top of the projected-out and at the bottom of the projected-in opening frames, and they slide in brass guides fitted in the channels of the fixed frame.

Stock widths, overall of the outer frame, are 2 ft. 2½ in., 2 ft. 8½ in., 3 ft. 2⅞ in., and 4 ft. 3¼ in. Heights: 4 ft. 8⅞ in., 6 ft. 3¼ in., 7 ft. 9⅜ in. and 9 ft. 4 in. The Crittall Manufacturing Co., Ltd., of Braintree, Essex, and 210 High Holborn, London, W.C.1, make this window.

The Plateswitch—a New Switch for A.C. Circuits. The designer of a new electric light switch has two important points to bear in mind apart from the normal considerations of performance and reliability—the external appearance and the ease of installation. The appearance must be suitable for the modern style of interior decoration and finish, and should not look out of place in conversion work where, perhaps, a 'period' building is concerned.

With these two points especially in mind, Messrs. M.K. Electric Ltd. have evolved the Plateswitch. The front-plate is slightly convex in two planes but is otherwise without ornament and so should not quarrel with any scheme of decoration. The dollies are shaped to give a good purchase to the finger or thumb. The switch mechanism is totally enclosed and is permanently assembled to the back of the front-plate, so that the whole forms a complete unit. This means that the distance from the back of the plate to the conduit box can be adjusted merely by varying the amount by which the two fixing screws are screwed into the corresponding holes in the conduit box, and this automatically allows irregularities in the plaster thickness to be overcome in the minimum of time, a point which the electrical contractor will no doubt appreciate.

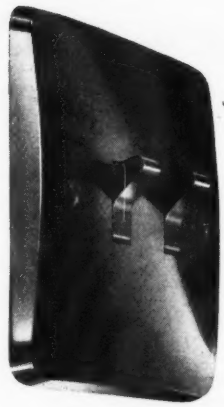
At present the switch is made in two patterns; one-gang and two-gang; the two-gang type is made with two-way switches only, and each or both switches can be wired either as one-way or two-way, making four combinations possible with one unit. The front-plates are made in brown or ivory finish, and the switches are priced very competitively.

A leaflet describing the range in detail may be obtained from the manufacturers of the Plateswitch, Messrs. M.K. Electric Ltd. of Wakefield Street, Edmonton.

Gas Equipment. The Gas Council have issued two booklets on gas equipment; one is called *The Planning and Equipping of Domestic Science Classrooms* and describes and illustrates various installations in schools throughout the country.

The other booklet, *Gas Equipment for Practical Rooms, Workshops and Laboratories in Schools and Colleges*, gives a schedule of the rooms with suggested gas distribution points and the equipment served. This is followed by descriptions and illustrations of the various articles of equipment. This booklet is No. 16 in the *Industrial Uses of Gas Series* issued by the Gas Council, 1 Grosvenor Place, London, S.W.1.

Trolon Synthetic Rubber. This material is a synthetic rubber, supplied in paste form; it contains an emulsifying agent which evaporates and thus matures the material, leaving a thin but tough skin. It can be applied to a floor or wall surface, giving a rubber-like surface that, in the case of a floor, is resilient, warm and quiet. The makers claim that it will adhere to any clean surface of concrete, wood, metal, granolithic, asphalt, linoleum, tiles, etc., as well as to new plaster and cement. As a floor surface it can be applied to a screed finished smooth from a steel float. It can be obtained in various colours.



The M.K. Electric Plateswitch

Trolon was used at the Toronto Fair, where it had to withstand the traffic of 3,000,000 visitors. It is manufactured by Messrs. Caledonian Concrete Products, Ltd., Plastics Division, of Argyle House, 29/31 Euston Road, London, N.W.1.

An Extraction Appliance. Much of the trouble in kitchens due to discoloration of walls and the appearance of reddish spots on the ceiling would be prevented if the fumes from the cooker were led away before they wander round the kitchen. An appliance that does this has now been brought out as a ready-made article; it is a metal hood with condense gutter, an outlet duct fitted to any side or the top, an electric motor and fan, and a plaster airbrick. The standard size of the hood is 3 ft. square, but it can be increased in size as the standard units are easily bolted up. The present price is ten guineas for the London area; fitting, of course, being extra. It is called the *Steamex* unit and is made by Messrs. F. G. Anstee & Partners, Ltd., of 4/6 Palace Street, London, S.W.1.

Aluminium Paint. The Northern Aluminium Company Ltd. of Banbury, Oxfordshire, have issued two pamphlets. One—*What you want to know about aluminium paint*, describes the particular properties and proper usage of such paint and the second introduces two new grades of Noral Alpaste, *Standard Polished* and *Standard Naphtha*; the first gives a brighter paint than the normal standard grade, and the second is especially for use with modern synthetic paint vehicles not based on white spirit solvents.

British Standards Recently Published

B.S. 2456: 1954. **Floats for Ballvalves (Plastics) for Cold Water.** The plastics materials chosen are from the types which do not require adhesives in their construction, the joint being formed under pressure and being itself an integral part of the float, thus eliminating the risk of air leakage. Price 2*s.* 6*d.*

Correspondence

STONEWORK MAINTENANCE IN HISTORIC BUILDINGS

The Editor, R.I.B.A. Journal.

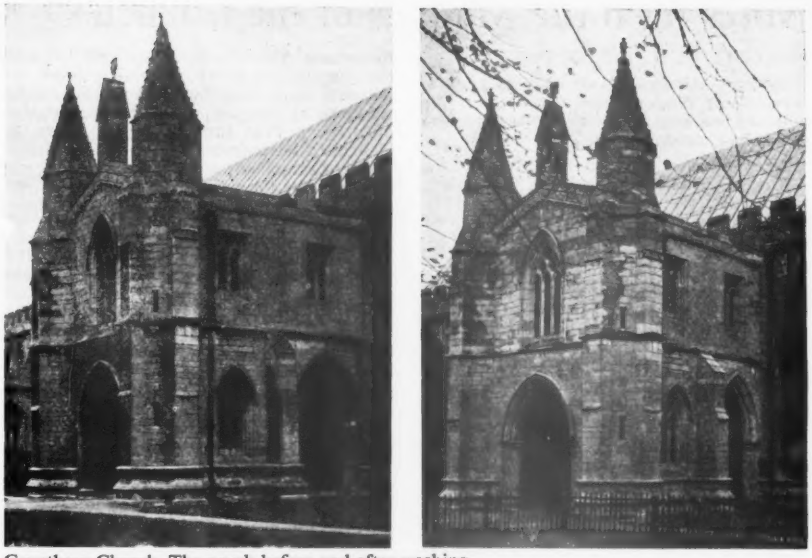
SIR,—Mr. Lawrence Dale asks for examples of cleaning stonework using nothing but water under pressure. It may be of interest to report my experience at Grantham Church where the 14th-century north porch was recently cleaned in this way, but without using pressure. The porch, which is built of Ancaster stone, was very heavily encrusted with soot and the surface was beginning to blister. The crust was entirely removed by means of a gentle spray of water, using garden hose pipes lashed to ladders. The length of time required depended on the extent of the crust and varied from eight to twenty-four hours. No scrapers or wire brushes were used, only a light bristle brush when the soot was thoroughly softened, but even this was not always necessary. The loss of surface, even where the stone had been badly blistered, was remarkably small.

This experience has shown that, at least on this type of stone, the injurious crust can be removed without pressure, at very slight expense.

The photographs show the porch before and after treatment.

Yours faithfully,

LAWRENCE H. BOND [*L*]



Grantham Church. The porch before and after washing



Grantham Church. The doorway before and after washing

SIR,—A very important point is brought out by Dr. Charles Holden—the reluctance of the Fire Brigade to attend buildings that are being destroyed slowly. The Brigade does not seem overworked, might not this additional service be rendered? It would want organising but it would be a source of revenue and a relief to the rates.

Yours sincerely,

LAWRENCE DALE [*F*]

EDUCATING THE PUBLIC

SIR,—The new cry loudly heard at the R.I.B.A. meeting on Architectural Journalism that 'educating the public is offensive and priggish' must be challenged before it becomes a thoughtless but powerful tribal slogan. Why should any education be offensive and priggish? To hell with this false modesty. And what is meant by 'the public'? We are all 'the public'.

We certainly will not create a better environment until more people (including architects) are better educated. Visual education should be applied in the ordinary schools as part of the standard curriculum and should be continued thereafter in the special schools by those who have been specially trained and have a taste for teaching. Outside the schools even now the R.I.B.A. and other bodies, as well as some journals, are doing their best with limited resources to educate the public eye. Let us not discourage them.

We need as much education of every sort we can get and someone must do the teaching. But education needs time and money, the only two commodities now in restricted supply.

You cannot educate anyone who does not want to be educated, in any case. Nor can you educate anyone who has no time or money. Since time is now money, the problem of educating the public is not a moral one (e.g. is it priggish or offensive?). How can right education of any kind be immoral? The problem, like almost all problems today, is *financial*.

Yours faithfully,

ERIC DE MARÉ [*A*]

'THE ARCHITECT'S DILEMMA'

SIR,—Twenty years ago I myself faced this dilemma to which Mr. S. Kearsley-Wooller refers; I was not alone. Today very many architects have come to realise that there is a definite and proper place in industry (certainly in those industries producing components or materials for use in building) for men qualified as architects who are content to specialise in materials or techniques so that their fellow architects in general practice may benefit from the 'pre-alignment' of mass-produced articles to fulfil the physical and aesthetic requirements of good design. A little mental effort on the part of our remaining diehards may be all that is needed to bring general realisation that John Buggins [*A*], employed as consultant to 'The Gigantic Welding and Fibre-Splicing Corporation', is not and never will be salesman, traveller or tout, but a really valuable link between the intelligent manufacturer and architects in practice, whose present-day clients can so seldom afford purpose-made equipment. I do not think there will ever be too many minds trained in architecture: this type of training fits a man for many fields, though it may well be that these fields need official exploration by the R.I.B.A. About 'Technical Advisers to the Building Industry' the tragedy is when such gentlemen happen not to have been qualified as architects.

Yours faithfully,

RAYMOND WALKER [*L*]

Notes from the Minutes of the Council

MEETING HELD 15 JUNE 1954

1. Birthday Honours. The cordial congratulations of the Council were conveyed to the following members on whom Her Majesty The Queen had conferred awards:

Knights Bachelor: Howard Robertson, M.C., A.R.A., S.A.D.G., President. A. G. Stephenson, C.M.G. [*F*] (Royal Gold Medallist, 1954). Lieut.-Colonel P. M. Hope, O.B.E. [*L*].

C.B.E.: G. E. P. Jackson, O.B.E. [*A*], S. A. W. Johnson-Marshall [*A*].

O.B.E.: H. F. Billimoria [*F*], E. Reily [*A*], E. E. Hall [*L*].

M.B.E.: R. W. Wardill [*A*], Edwin Pallett [*L*].

2. Appointments.
Codes of Practice Committee for Buildings: R.I.B.A. Representatives. George Fairweather [*F*], E. D. Mills [*F*], R. N. Wakelin [*F*].

B.S.I. Committee B/75: Modular Co-ordination: R.I.B.A. Representative. O. C. F. Carey [*A*] in place of C. C. Handisyde [*A*], declined.

B.S.I. Committee TIB/3: Definitions and Nomenclature of Timber: R.I.B.A. Representative. G. Newell [*A*].

Sheffield University Court of Governors: R.I.B.A. Representative. S. Elden Minns [*L*].

3. London Architecture Bronze Medal. The Jury entrusted by the Royal Institute of British Architects with the award of the London Architecture Bronze Medal have made their award for the year ended 31 December 1953 in favour of the New Out-Patients' Building, St. James' Hospital, Balham, S.W.17, designed by Messrs. A. H. Devereux and E. L. W. Davies [*FF*].

4. British Architects' Conference, 1954. A hearty vote of thanks was passed unanimously in favour of the President and Council of the Devon and Cornwall Society of Architects and all those who had assisted in the successful Conference held at Torquay.

5. Building Research Station Exhibit. Approval was given to arrangements made by the Public Relations Committee for the Building Research Station's exhibit which was shown at the British Architects' Conference at Torquay to be shown at the R.I.B.A. from July 3–17 inclusive.

6. Report of the Millard-Tucker Committee on the Taxation Treatment of Provisions for Retirement. Mr. Charles Woodward [*A*] and the Deputy Secretary were appointed to represent the R.I.B.A. at further meetings to be convened by the Law Society for the purpose of studying what action might be taken to implement the recommendations of the Millard-Tucker Committee on the taxation treatment of provisions for retirement by self-employed professional men, in consultation with representatives of leading professional bodies.

7. No. 68 Portland Place. The Council approved of instructions being given to Messrs. Wornum and Playne [*FF*] to prepare plans and an approximate estimate of cost for the rebuilding of No. 68 Portland Place, with a view to this rebuilding being completed, as covenanted with the ground landlords, by 1960.

8. Regulations governing the Promotion and Conduct of Architectural Competitions. On the recommendation of the Competitions Committee the Council gave approval to a revised definition of the title 'architect' for insertion in the Regulations and in the Model Form of Conditions. The revised definition will read as follows: 'For this purpose the word "architect" shall mean any person who at the time of his application for the competition conditions is registered under the Architects' Registration Acts, 1931 and 1938, or, being qualified for registration had already made application to the Architects' Registration Council in the prescribed form to be admitted to the register. Any applicant for the conditions should state his registration number, and in the case of an unregistered person who has made application for registration, the date of such application and the number of the receipt issued by the Architects' Registration Council in respect of the admission fee. Where application is made by a firm the registration numbers and dates of registration of the architect partner or partners of the firms must be given.' The Council also gave approval to revisions to the Directions for Assessors aimed at saving time at each of the various stages of a competition and also encouraging the holding of two-stage competitions in suitable cases.

9. Membership. The following members were elected: As Fellows 12; as Associates 232; as Licentiates 8.

10. Students. 96 Probationers were elected as Students.

11. Applications for Membership. Applications for election were approved as follows: *Election 12 October* 1954 (*Overseas Candidates*): as Fellows 3; as Associates 33.

12. Applications for Reinstatement. The applications of Archibald Ernest Bennett and Mohammed Hashmat Raza for reinstatement as Associates were approved.

13. Resignations. The following resignations were accepted with regret: William Ernest Gixby [*A*], Mrs. Doris May Langrishe [*A*], Frank Kenneth Shaw [*A*], Arthur Forbes Cargill [*L*].

14. Applications for Transfer to Retired Members' Class under Bye-law 15. The following applications were approved: as Retired Associate, William Mackintosh; as Retired Licentiates, William Craig Boyd, William Henry Dark.

15. Obituary. The Secretary reported with regret the death of the following members: William Hanneford-Smith, F.R.S.E., A.M.I.C.E. [*Hon. A*]. Colonel John Maurice Arthur, C.M.G., D.S.O., D.L. [*F*]. Colonel Arthur was a past President of the Glasgow Institute of Architects and had represented that body on the Allied Societies' Conference. He had also served on the Council as a representative of the Royal Incorporation of Architects in Scotland and on the Constitutional Committee. John Glen Dunn [*F*]. Major Thomas Stewart Inglis, D.S.O. [*F*]. Richard Bertram Ling [*F*]. Mr. Ling was a past member of the Science Standing Committee. Egerton Alwyn Lawer Martyn [*F*]. Mr. Martyn was a past President of the Berks, Bucks and Oxon. Architectural Association and had represented that body on the Council and Allied Societies' Conference. G. McLeod Pitts [*F*]. Mr. Pitts was a past President of the Royal Architectural Institute of Canada and had represented that body on the Council. Henry Ralph Surridge [*F*]. Ivor George Foster [*A*]. Percy Edward Hale [*A*]. Norman Fraser Shanks [*A*]. Bernard Frederick Brueton M.B.E. [*Retd. A*]. Mr. Brueton was awarded the R.I.B.A. Distinction in Town Planning. John Edgar Bullock [*Retd. A*]. Francis Henry Jones [*Retd. A*]. Richard Percival Kennedy [*L*]. Joseph William Nelson Ledbury [*L*]. Edwin Priestley [*L*]. Arthur Frederick Smith [*L*]. Thomas Frederick Bell [*Retd. L*]. William Hoe [*Retd. L*].

By resolution of the Council the sympathy and condolences of the Royal Institute have been conveyed to their relatives.

Notes and Notices

NOTICES

Session 1953–1954. Minutes VIII. At the Eighth General Meeting of the Session 1953–1954 held on Tuesday 15 June 1954 at 6 p.m.

Sir Howard Robertson, M.C., A.R.A., S.A.D.G., President, in the Chair.

The meeting was attended by about 100 members and guests.

The Minutes of the Seventh General Meeting held on Tuesday 18 May 1954 were taken as read, confirmed and signed as correct.

The following members attending for the first time since their election were formally admitted by the President: *As Associates*—T. R. Bedding, J. P. Bentall, Mrs. M. G. Cawthorn, D. J. Clark, P. S. Ednie, D. O. G. Elliott, James Gray, R. L. Head, D. C. Morgan, O. Evans Palmer, R. P. Radley, Johnathan Sass, K. H. Vickers, G. W. Wakeham, E. G. Wiseman.

The Secretary having read the Report of the Scrutineers on the result of the Annual Election for the Council, the President declared that the members of the Council and the Honorary Auditors for the Session 1954–1955 were duly elected in accordance therewith. On the motion of the President, a vote of thanks was passed by acclamation to the Scrutineers for their labours, and was briefly responded to by Mr. E. G. Allen [*F*], Chairman of the Scrutineers.

Mr. Richard A. Simons, of the Building Research Station, having introduced the subject, a discussion on Model Building Bye-laws ensued.

The President thanked Mr. Simons for this introduction and the other speakers for their contributions to the discussion.

The proceedings closed at 7.55 p.m.

Associates and the Fellowship. Associates who are eligible and desirous of transferring to the Fellowship are reminded that if they wish to take advantage of the next available election they should send the necessary nomination forms to the Secretary, R.I.B.A., as soon as possible.

Licentiates and the Fellowship. By a resolution of the Council passed on 4 April 1938 all candidates whose work is approved are required to sit for the Examination, which is the design portion of the Special Final Examination, and no candidates will be exempted from the examination.

Note.—The above resolution does not affect Licentiates of over 60 years of age applying under Section IV, Clause 4 (*c*) (ii) of the Supplemental Charter of 1925.

Building Surveying Examination. The R.I.B.A. Examination qualifying for candidature as Building Surveyor under Local Authorities will be held at the R.I.B.A. on 6, 7 and 8 October 1954. Applications for admission to the examination must be made not later than 13 August

on the prescribed form to be obtained from the Secretary, R.I.B.A.

Use of Affix 'F/A/L.R.I.B.A.' Attention has been called to the use by some members resident overseas of the R.I.B.A. affix modified in the form 'A.R.I.B.A.(London)'. Such a modification is incorrect, as the Royal Institute is a Commonwealth Society, qualification for membership being obtainable through the R.I.B.A. Examinations, which are held in various parts of the Commonwealth, and those in the Dominions which give exemption from the R.I.B.A. Examinations. The affix should therefore be F.R.I.B.A., A.R.I.B.A. or L.R.I.B.A. as the case may be.

CURRENT R.I.B.A. PUBLICATIONS

The following is a list of the main R.I.B.A. publications with their prices.

Agreement, Forms of
Form of Agreement for General Use between a Building Owner (including a Statutory Authority) and a Firm of Architects.
Form of Agreement between a Local Authority and a Firm of Architects for Housing Work.
Form of Agreement between a Local Authority and a Firm of Architects for Multi-Storey Flats.
Form of Agreement between the Promoters and a Firm of Architects appointed as the Result of a Competition.
Price 6*d.* per form (inclusive of purchase tax). Postage 3*d.*

Architect and His Work, The
Price 6*d.* Postage 3*d.*

Before You Build. Free.

Certificates, Architects', Form Prepared by the Practice Committee
Copyright. Book of 100 Certificates.
Price 17*s.* (inclusive of purchase tax). Postage 1*s.* 2*d.*

Conditions of Engagement and Scale of Professional Charges
Price 6*d.* Postage 3*d.*

Contract, Form of Agreement and Schedule of Conditions
For use with quantities: 1939 revised 1952. Copyright.
For use without quantities: 1939 revised 1952. Copyright.
Price 2*s.* 2*d.* per form (inclusive of purchase tax). Postage 3*d.*
Adapted for the use of Local Authorities, for use with quantities: 1939 revised 1952. Copyright.
Adapted for the use of Local Authorities, for use without quantities: 1939 revised 1952. Copyright.
Price 2*s.* 4½*d.* per form (inclusive of purchase tax). Postage 3*d.*
Fixed Fee Form of Prime Cost Contract for use in the repair of war-damaged property, 1946 revised 1950. Copyright.
Price 2*s.* 2*d.* (inclusive of purchase tax). Postage 3*d.*
Cost Plus Percentage Form of Prime Cost Contract for use in the repair of war-damaged property: 1946 revised 1950. Copyright.
Price 2*s.* 2*d.* (inclusive of purchase tax) Postage 3*d.*

Examination, Intermediate, Questions Set At
Price 1*s.* per examination. Postage 3*d.*

Examination, Professional Practice, Questions Set At
Price 6*d.* Postage 3*d.*

Examinations, Final and Special Final, Questions Set At
Price 1*s.* per examination. Postage 3*d.*

Forms of Articles of Pupilage
Copyright. Price 1*s.* 8*d.* (inclusive of purchase tax). Postage 3*d.*

Membership of the R.I.B.A.
Particulars of the Qualifications for Associateship.
Price 2*s.* 6*d.* Postage 3*d.*

Party Wall Notice Forms, for Use Under the London Building Act
Form A—Party Structures.
Form B—Party Fence Walls.
Form C—Intention to Build within Ten Feet and at a lower level than the bottom of the foundations of adjoining Owner's Building.
Form D—Intention to build within Twenty Feet of the adjoining Owner's Independent Building and to a depth as defined in Section 50 (1) (*d*).
Form E—Party Walls and Party Fence Walls on line of Junction of adjoining lands.
Form F—Walls or Fence Walls on Building Owner's land with footings and foundations projecting into adjoining Owner's land.
Form G—Selection of Third Surveyor.
Price 7*d.* per form (inclusive of purchase tax). Postage 3*d.*

Prizes and Studentships
Price 2*s.* 6*d.* Postage 3*d.*

COMPETITION

Dow Prize Competition. The Illuminating Engineering Society offers a prize which will be awarded to the winners of a competition intended to encourage collaboration between students of illuminating engineering or of those branches of engineering concerned with illumination, and students in other fields in which applied lighting plays an important part. While entries from individuals are not excluded, the competition is primarily intended for students (under the age of 26) working in collaboration. The competition will be set and judged by a panel of assessors appointed by the Society in co-operation with the R.I.B.A. and the Institution of Electrical Engineers.

Premium: £75 (and a certificate to each member of the winning team).

Certificates of commendation will be awarded to any other entries of outstanding merit.

Last day for submitting designs: 15 November 1954.

Forms of application and instructions as to the form which entries should take may be obtained from the Secretary of the Illuminating Engineering Society, 32 Victoria Street, London, S.W.1.

BOARD OF ARCHITECTURAL EDUCATION

The R.I.B.A. Intermediate Examination, May 1954. The R.I.B.A. Intermediate Examination was held in London, Plymouth, Manchester, Leeds, Newcastle, Edinburgh and Belfast from the 7 to 13 May 1954. Of the 459 candidates examined, 153 passed and 306 were relegated. The successful candidates are as follows:

Agius, Walter
Ainley, Brian
Allen, R. A.
Anders, G. G.
Anns, Gerald
Arentsen, H. B.
Ashbourne, Dennis
Avis, R. F.
Bacon, J. W.
Baker, J. N.
Bargman, John
Bartleet, S. T.
Bastow, Peter
Bates, Donald
Bellamy, T. A.
Beney, P. B.
Berry, P. A. (Miss)
Bisley, Patrick
Blackwell, D. R.
Bly, James
Bradnick, R. J.
Bulmer, F. L.
Burgess, G. B.
Butler, W. J.
Butters, M. L. M. (Miss)
Came, J. F.
Caple, A. J.
Chamberlain, Roy
Charatan, Gordon
Cherrill, J. O.
Choyce, G. A.
Clarke, David
Clemence, G. P.
Clements, M. F.
Clouter, W. J.
Cobert, M. N.
Cockerill, L. A.
Cooper, J. A.
Cowen, C. N.
Cutler, J. D.
Dale, J. P.
Davies, G. W. J.
Davies, W. D.
Davis, J. N.
DeVulder, J. E.
Dickinson, F. E.
Dickinson, R. L.
Duffie, M. L.
Dyer, R. G.
Eddolls, R. A.
Edmundson, G. A.
*Edwards, Douglas
Evans, D. H. A.
Farrance, C. W.
Featherstone, K. A.
Fenn, Colin
Fisk, R. A.
Ford, T. E.
Foster, B. C. M.
French, M. J. (Miss)
Frizzell, J. M. A. (Miss)
Gabb, J. K.
Greenwood, A. G.
Haggas, James
Hall, John
Hampson, Derek
Headon, J. C.
Hedworth, D. W.
Herbert, K. R.
Heywood, Geoffrey
Hiscocks, B. G.
Hodgson, L. A.
Holloway, B. R.
Holton, G. G.
Hunter, James
Ingham, J. K.
Jackson, Frank
John, G. R.
Johnson, A. T.
King, R. A. J.
Kite, V. L.
Knight, T. C. A.
Knott, R. G.
Lewendon, P. N.
Lighten, P. K.
Littler, J. A.
Longworth, Alan
Louden, A. G.
McIlwaine, D. E.
Macnaughtan, H. P.
Marshall, G. P.
Martin, J. H.
Massey, Leonard
Masterman, M. M.
Millard, R. E.
Mims, R. H.
Moffatt, J. B.
Moreton, B. B.
Morris, T. G.
Morrow, N. S.
Norman, Xenia (Miss)
Owen-Pawson, J. A.
Paine, A. C.
Payne, M. G.
Pearson, Ronald
Peters, B. D.
Phillips, A. K.
Pierson, A. H.
Plastow, A. R. (Mrs.)
Poulson, L. J.
Prosser, D. I.
Puffahl, M. A.
Rainbird, G. L. M.
Riley, D. O.
Robinson, J. C.
Rose, C. W.
Rowson, P. B.
Samways, W. G.
Sanders, N. S.
Savery, Keith
Scott, P. R.
Senior, D. J.
Sharman, A. E.
Sharpe, P. J.
Sharples, J. R.
Shryane, John
Smith, C. L. M.
Smith, D. G.
Soutar, A. D.
Sparrow, J. F. G.
Sperring, A. B.
Tart, R. W.
Taylor, Geoffrey
Thomas, N. D.
Thomson, John
Thrower, V. J.
Thurmott, M. J.
Tong, D. R.
Treacher, R. C.
Trew, A. J. P.
Tulip, James
Walford, G. H.
Wallis, P. J. (Miss)
Watson, N. M.
Watts, J. R.
Webster, Hugh
Webster, N. F.
West, D. J.
Williams, Leon
Wilson, W. R.
Wood, E. H.
Wood, M. T. W.
Woodward, B. R.

* Subject to approval of thesis.

Ashpitel Prize 1953. Mr. Derek Wellesley Bowes [*A*] of 1 Sydney Road, Richmond, Surrey, who passed the Final Examination in June 1953, obtained the highest number of

marks in the examinations held in 1953 and has therefore been awarded the Ashpitel Prize. Mr. Bowes, who is 25 years of age and was elected an Associate in February 1954, received his architectural training at the Brixton School of Building, London.

ALLIED SOCIETIES

Changes of Officers and Addresses

Birmingham and Five Counties Architectural Association. President, S. T. Walker [*F*]. Joint Hon. Secretary with Mr. G. S. Kelly [*A*] is now Lt.-Col. J. L. Osborne, M.B.E., T.D. [*A*], 95 Colmore Row, Birmingham 3.

East Anglian Society of Architects. President, B. W. Olley [*A*].

Hampshire and Isle of Wight Architectural Association. President, J. B. Brandt [*F*]. The former acting Hon. Secretary, Mr. H. G. Hayter [*L*], now becomes Hon. Secretary. *Central Chapter:* Chairman, E. M. Galloway [*A*]. *Eastern Chapter:* Chairman, P. McG. Corsar [*A*]. Hon. Secretary, R. W. Leggatt, M.C. [*A*], 49 Commercial Road, Portsmouth. *Isle of Wight Chapter:* Chairman, L. R. Smith [*A*]. *Western Chapter:* Chairman, F. R. Greenen [*A*]. Hon. Secretary, D. A. Cull [*A*], Messrs. Seaton and Cull, Central House, Lansdowne, Bournemouth.

Northamptonshire, Bedfordshire and Huntingdonshire Association of Architects. President, H. D. Williams [*A*]. Hon. Secretary, Peter J. Ball [*A*], County Architect's Department, County Buildings, Huntingdon. *Bedfordshire Branch:* Chairman, J. V. Gedge, T.D. [*F*]. Hon. Secretary, F. H. Saunders [*A*], 66 Everton Road, Potton, near Sandy, Beds. *Northants Branch:* Chairman, J. T. B. Neville [*L*]. Hon. Secretary, D. C. Small [*A*], 24 Billing Road, Northampton.

Northern Architectural Association. President, Professor W. B. Edwards [*F*].

Oxfordshire Society of Architects. Chairman, R. W. Cave [*A*].

Sheffield, South Yorkshire and District Society of Architects. President, H. A. Hickson [*F*].

South-Eastern Society of Architects. President, Graham Crump [*F*]. *Canterbury District Chapter:* Chairman, L. Hugh Wilson, O.B.E. [*A*]. Hon. Secretary, K. Waite [*A*], 10 Cornwallis Avenue, Folkestone. *Croydon District Chapter:* Chairman, L. A. Macintosh [*A*].

South Wales Institute of Architects, Eastern (Newport) Branch. Chairman, D. B. Owen [*A*].

Wessex Federal Society of Architects. Hon. Secretary, Hugh P. Crallan [*A*], 11 Bladud Buildings, Bath.

Wilts and Dorset Society of Architects. President, W. N. Oliver [*L*].

West Yorkshire Society of Architects. President, Hubert Bennett [*F*].

York and East Yorkshire Architectural Society, Hull and District Chapter. Chairman, Joseph Conrad, 112 Park Avenue, Hull.

Royal Society of Ulster Architects. President, R. S. Wilshere, M.C. [*F*].

Royal Architectural Institute of Canada. President, A. J. C. Paine, 309 Sun Life Building, Dominion Square, Montreal, Quebec.

Institute of South African Architects. President-in-Chief, J. N. Cowin [*A*].

Institute of Architects of Malaya. President, Chen Yam Koh [*F*].

Indian Institute of Architects. M. K. Jadhau [*F*].

The Royal Incorporation of Architects in Scotland. Annual Convention 1954. The Thirty-Seventh Annual Convention of the Royal Incorporation of Architects in Scotland was held at Gleneagles Hotel, Perthshire, on 4 and 5 June.

At the Annual General Meeting, which was held during the afternoon of 4 June, Mr. Leslie Grahame MacDougall, R.S.A. [*F*], was re-elected President for Session 1954–55.

Prior to the Annual Dinner, members were the guests of the Stirling Society of Architects at a cocktail party. The toast of the Architectural Profession at the Dinner was proposed by The Right Hon. The Earl of Dundee and responded to by Mr. Leslie Grahame MacDougall, P.R.I.A.S. Mr. Gordon B. Biggar, F.R.I.A.S., President of the Stirling Society of Architects, proposed the toast 'The Guests' to which Sheriff A. M. Prain replied, and Mr. W. H. Henry, F.R.I.A.S., Vice-President of the Stirling Society of Architects, proposed the health of the Chairman. The R.I.B.A. was represented by the Secretary, Mr. C. D. Spragg, C.B.E.

GENERAL NOTES

Materials and Techniques. Mr. J. Eastwick-Field [*A*] has pointed out to us that two of the illustrations to the paper by Mr. W. A. Allen and Mr. E. D. Mills, published in the June JOURNAL, were his copyright. They were of the flooring (p. 307) and the concrete walling units (p. 313) at Wokingham School. We regret that this fact was not acknowledged.

R.I.B.A. Golfing Society.—*Spring Meeting at Coombe Hill Golf Club, 18 May* 1954. The Spring Meeting of the R.I.B.A. Golfing Society was held at Coombe Hill Golf Club this year, and was well attended. The Sullivan Trophy was won by J. W. McGregor with a score of 77 − 4 = 73 after a tie with G. Felix Wilson whose score was 78 − 5 = 73. J. W. McGregor was awarded the trophy on the best score for the second nine holes. The afternoon four-ball bogey competition was won by W. R. F. Fisher and E. H. Firmin with a score of 6 up.

The meeting was notable for a hole in one achieved by Victor Farrier at the ninth.

Annual Match against L.M.B.A. The annual event between the Golfing Society and the L.M.B.A. was played at West Hill Golf Club on Tuesday 15 June. The matches were played under handicap; the form of play being foursomes in the morning and fourballs in the afternoon. The builders led by six matches to four in the morning, but in the afternoon the architects reversed the position by also winning six matches to four, making the result for the day a tie, with ten matches to each society.

R.I.B.A. v. The London Solicitors' Golfing Society at Berkshire Golf Club, Ascot. The above match was played on Saturday, 19 June. The teams were eight aside. In the morning the architects won the singles by four matches to one with three halved and in the afternoon excelled themselves by winning all the foursomes.

Annual Summer Week-End Meeting held at Rye Golf Club, Sussex, 26–27 June. The Society was very hospitably received both at the Golf Club and Pelsham Guest House at Peasmarsh. The famous golf course was in excellent condition and scoring was difficult because of a testing wind.

The Allensby Bowl was won on Saturday morning by R. G. Scott, playing off 2 handicap with a score of 34¾ points. The runner-up was Andrews-Jones with a score of 30½ off a handicap of 17. The afternoon foursomes competition was won by R. G. Scott and J. Emberton. On Sunday the Captain's prize was won by A. D. McGill, handicap 10, with a score of 33¾ points, and the President's prize was won by R. G. Scott with a score of 32¾ points.

R.I.B.A. Cricket Club. *R.I.B.A. v. L.M.B.A. 3 June 1954.*

Results

R.I.B.A.

J. Kennedy Hawkes, b. Evans, M. P.	14
A. Douglas, b. Burton	2
B. S. Smyth, c. Lessiter, b. Garrett	2
D. L. Robinson, c. and b. Evans, M. P.	7
G. Fyson, l.b.w. b. Lessiter	20
C. A. R. Norton, c. Lessiter, b. Burton	29
J. G. Batty, b. Burton	1
D. S. Taylor, b. Burton	3
D. le M. Brock, b. Burton	22
F. G. Cooper, not out	2
R. Case, c. Evans, R. L., b. Burton	4
Extras	15
Total	149

Burton 6 for 30; Evans 2 for 50; Garret 1 for 17; Lessiter 1 for 12.

L.M.B.A.

A. F. Wallis, b. Robinson	73
E. Lessiter, c. and b. Cooper	16
F. Vidler, l.b.w. b. Norton	31
J. Seward, not out	19
R. L. Evans, b. Robinson	0
D. Smallwood, not out	0
D. F. Wallis, M. P. Evans, W. C. Burton, R. F. Tobitt, B. J. Garrett did not bat	
Extras	7
Total (4 wkts.)	146

Robinson 2 for 37; Cooper 1 for 22; Batty 1 for 15.

The L.M.B.A. won by 6 wickets.

R.I.B.A. Cricket Club. *R.I.B.A. v. A.A., Boreham Wood, 16 June.*

Results

A.A.

Winkley, c. Baverstock, b. Cooper	5
Knott, c. Bishop, b. Mudie	0
Collymore, c. Brock, b. Cooper	13
Cole, b. Mudie	5
Gunasekara, b. Mudie	5
Dalton, b. Cooper	10
Case, l.b.w. b. Cooper	1
Ringshall, c. Linfield, b. Cooper	4
Roberts, not out	0
Fraser, b. Norton	5
Tucker, b. Norton	0
Extras	8
Total	56

Cooper—5 for 31; Mudie—3 for 17; Norton—2 for 0

R.I.B.A.

Brock, c. Winkley, b. Ringshall	0
Mudie, b. Dalton	15
Bishop, l.b.w. b. Dalton	14
Taylor, b. Ringshall	7
Linfield, b. Ringshall	3
Atkinson, run out	4
Norton, l.b.w. b. Dalton	4
Cooper, c. Winkley, b. Dalton	0
Baverstock, not out	5
Tomei, not out	2
Winton-Lewis—did not bat	
Extras	3
Total (8 wkts.)	57

Ringshall—3 for 24; Dalton—4 for 15.

Membership Lists

ELECTION: 15 JUNE 1954

The following candidates for membership were elected on 15 June 1954.

AS FELLOWS (12)

Batty: John [*A* 1921].
Brown: Professor Raymond Gordon, M.A. (Edin.), A.A.Dipl. [*A*. 1937], Hong Kong.
Hayes: Louis [*A* 1935], Birmingham.
Hutchison: Robert Forbes [*A* 1937], Edinburgh.
Ionides: (Mrs.) Anne Joyce [*A* 1930].
James: Ernest Edwin [*A* 1938], Hereford.
Lomas: James Philipps, Dipl.Arch. (L'pool) [*A* 1937], Douglas, Isle of Man.
Lowe: George Charles [*A* 1936], Croydon.
Parkin: John Cresswell, M.Arch. (Harvard), B.Arch. (Manitoba) [*A* 1946], Toronto, Ontario, Canada.
Ralton: Alan John, B.Arch. (Melbourne) [*A* 1933], Melbourne, Victoria, Australia.
Robb: George [*A* 1933], Manchester.
Whitby: George Frederick, M.B.E. [*A* 1947].

AS ASSOCIATES (232)

Adkins: Edgar Henry James, Brentwood.
Alderton: Harry Graham.
Alford: Michael Gower.
Allen: John Cooper, Nottingham.
Allford: David, B.A.(Arch.) (Sheffield).
Ashby: Samuel Ralph John, A.R.I.C.S.
Bailey: Frank, Dip.Arch. (Sheffield), Sheffield.
Banwell: George Edward, Canterbury.
Barber: Eric Anthony, Barking.
Barnett: Norman James, Birmingham.
Batliwala: Navel Bomanshaw.
Batt: Arthur George, Bromley.
Batty: John Geoffrey.
Baverstock: William Howard John, Welwyn Garden City.
Behrend: (Miss) Anne Margaret, B.Arch. (L'pool).
Benson: Jeremy Henry.
Bestley: John William Richard, Polegate.
Binns: George Duncan, Dipl.Arch. (Leeds), Chippenham.
Binns: Ronald George, Dip.Arch. (The Polytechnic), Harlow.
Bond: Frederick Arnold.
Booth: (Miss) Cynthia Eleanor.
Bottomley: Philip Arthur.
Bowden: Geoffrey Laurence, Crowthorne.
Brazier: Arthur John, Dip.Arch. (Birm.), Birmingham.
Bright: Roy Arthur, Upminster.
Brown: Alan Whitford, B.Arch. (L'pool), Union Mills, Isle of Man.
Bryant: John David Robertson, Dip.Arch. (Pretoria), Pretoria, S. Africa.
Buckingham: Bruce James Stanley, Hove.
Burgoine: Robert Cocks, Norwich.
Burrows: Michael John Lewis, Dipl.Arch. (Northern Polytechnic), Maidenhead.
Buxton: Thomas, D.A. (Dundee), Dundee.
Cannon: Donald Jack, Dipl.Arch. (Northern Polytechnic).
Carter: Albert Kenneth Frank, Southampton.
Chambers: Ronald, Dip.Arch. (Manchester), Blackburn.
Chevalier: Philip Helier.
Chrisp: Geoffrey William, Westcliff-on-Sea.
Clark: James Colin Foulger.
Clarkson: Lawrence.
Clendinning: Walter Maxwell, A.A.Dipl., Richhill, Co. Armagh.
Cockram: Norman Leonard, Exeter.
Cook: Alfred Sidney, Cheltenham.
Cooper: Edward Roland, Graveley.
Cooper: John Watson, B.A.(Arch.) (Sheffield), Sheffield.
Cowie: David Robert, B.Arch. (L'pool), Montreal, P.Q., Canada.
Cramer Roberts: (Miss) Benita Esme Frances.
Crothers: John, Dip.Arch. (Manchester), Oldham.
Cummins: Ewart Ernest George, Portslade.
Davidson: Gerald Keith, Liverpool.
Davies: Frederick Paul, Richmond, Surrey.
Davis: Norman Charles, Birmingham.
Day: Maurice Reginald, Henley-on-Thames.
Denham: Keith Lionel, Sandown, Isle of Wight.
Dickinson: Trevor, D.A.(Edin.), Wigan.
Dickson: William, B.Arch. (L'pool), Liverpool.
Dixon: Donald Arthur Edward, Dipl.Arch. (L'pool), Liverpool.
Dobb: Arthur Joseph.
Drought: Thomas Ralph, Burnham-on-Sea.
Duckworth: Douglas Alexander, Watford.
Dumpress: Philip William.
Dunne: J. Maurice, Malahide, Co. Dublin.
Durell: (Miss) Christine Ann, Brighton.
Ellison: Eric Doig, Glasgow.
Elson: Stanley.
Evans: Martin Philip William.
Fairbairn: Kenneth Shaw, Birmingham.
Fairs: Ernest, Bradford.
Fawcett: Edward Stokoe, Cambridge.
Fernley: Clifford, Hyde.
Flower: Roy Harold William, Dip.Arch. (Birm.), Rugby.
Francis: Joseph Whitefield, East Kilbride.
Franklin: Rodney Gurney, Portsmouth.
Fraser: James Alexander, D.A. (Dundee), Edinburgh.
Fraser: Ralph Stanley, Westcliff-on-Sea.
Gathern: Raymond Charles Harry, Worthing.
Gibson: Frederick Raymond.
Gibson: Kenneth Malcolm, Dip.Arch. (The Polytechnic).
Gildersleeve: Roger Francis, Dip.Arch. (The Polytechnic), Sidcup.
Glen: (Miss) Meriel Sheila, Dip.Arch. (Pretoria), Pretoria, S. Africa.
Govekar: Shankar Gopal, Bombay, India.
Grace: Francis Roland, Dipl.Arch. (U.C.L.).
Grant: James Lennox, D.A. (Glas.), Helensburgh.
Gray: (Miss) Sybil Mary, Dip.Arch. (The Polytechnic).
Greenwood: Denis, B.Arch. (L'pool), Halifax.
Gregory: Anthony, B.A. (Cantab.), Petersham.
Hadwick: Geoffrey, Manchester.
Hall: Peter, B.A. (Cantab.), Bourn.
Hammond: Frederick William.
Harbott: Colin Charles, Ilford.
Hauser: Grahame Otto, B.Arch. (L'pool), Birmingham.
Helyar: Leonard, Taunton.
Henton: Aubrey Stewart, Ewell.
Higson: Geoffrey Tunnah, B.Arch. (L'pool), Liverpool.
Hodgson: Leslie Trevor, B.Arch. (L'pool), Birmingham.
Horner: Reginald, Dip.Arch. (Nottm.), Newark.
Howitt: John Piggin, Nottingham.
Hudson: Brian, Oldham.
Hutchison: James, D.A.(Edin.), Edinburgh.
Hutton: Anthony Thackeray, Dipl.Arch. (Oxford), Oxford.
Hynch: Gordon Robert, Hove.
Ingram: Derick William, Dipl.Arch. (Northern Polytechnic).
Jackman: Harry Brian, B.A.(Arch.) (Manchester), Leeds.
Jeffery: Edgar Charles, A.R.I.C.S., New Malden.
Johnston: Nicholas John, B.A. (Cantab.), Fareham.
Jones: John Nuttall, A.R.I.C.S.
Jones: Norman William Percy, Dip.Arch. (Birm.), Wolverhampton.
Jones: Peter Allen, Sevenoaks.
Jones: Thomas Lloyd, Dip.Arch. (Birm.), Llangefni, Anglesey.
Kain: Raymond Douglas.
Kelly: Colm Paul, B.Arch. (N.U.I. Dublin), Dublin.
Kerss: John Elliott, Dip.Arch. (The Polytechnic), Bishop's Stortford.
King: Ernest Stanley, Dip.Arch. (Leics.), Northampton.
Kruchek: Frank Michael.
Lane: John Graham.
Latham: Roy, Dip.Arch. (Manchester), Harlow.
Leighton: Edwin Samuel, Belfast.
Long: Ivor Desmond, New Inn, Mon.
Long: Kenneth Starling, Ashtead.
Lord: Roger Briggs, B.A.(Arch.) (Manchester), Littleborough.
Luder: Harold Owen.
McClenaghan: Alexander, High Blantyre.
McDonald: David Wylie, D.A. (Dundee), Dundee.
MacKenzie: James Sutherland, Dip.Arch. (Abdn.), Aberdeen.
McLaren: Dudley Walter.
McLean: Thomas, Haddington.
McNicol: Leo Patrick, Oldbury.
Malone: Peter Elwin, B.A.(Arch.) (Sheffield), Sheffield.
Malson: Barry William Cole, Chesterfield.
Maney: David John, Dipl.Arch. (Northern Polytechnic).
Manser: Michael John, Dip.Arch. (The Polytechnic), Epsom.
Marner: Dudley Lionel Sydney Davies, Whyteleafe.
Marshall: Victor Derek, Birmingham.
Mathewson: Arthur John, Norwich.
Mayne: Eric, A.A.Dipl., Richmond, Surrey.
Menage: Bernard Adolphe, A.A.Dipl., New Malden.
Montefiore: Derek John.
Morgan: Lindsay Rhys, B.A.(Arch.) (Lond.), Ipswich.
Morter: Ronald, Dip.Arch. (Leics.), Chesterfield.
Mortimer: Roger William Andrew, Blandford.
Murphy: Denis Yelverton, Leatherhead.
Naden: Frank Ronald, Leek.
Neal: John Gordon, Dip.Arch. (Birm.), Birmingham.
Neville: Colin Charles, Ramsgate.
Nicholls: Robert Perry, B.Arch. (L'pool), Wirral.
Nichols: Walter Herbert Edwin, Romford.
Nicholson: Christopher, Dip.Arch. (Dunelm), Cambridge.
O'Keeffe: Patrick, Dip.Arch. (Sheffield).
Oltmanns: Peter.
ONeill: Anthony Michael, B.Arch. (N.U.I. Dublin), Newbridge.
Orford: Thomas Kirkpatrick, B.Arch. (L'pool), Knutsford.
Orr: William Paton, D.A. (Glas.).
Ozolins: Laimons Knud Eugen, B.A.(Arch.) (Lond.).
Paine: John Warwick, Lancaster.
Palmer: Michael John Davenport.
Palmer: Oliver Evans.
Parker: Norman Chris Charles, Croydon.
Parry: Arthur Reginald.
Partridge: Barry, West Hagley.
Paul: Alexander Davidson, D.A.(Edin.), Bathgate.
Pearcey: Peter Harold Roy, Dip.Arch. (The Polytechnic).
Pearson: Richard Dillon, Dip.Arch. (Sheffield), Sheffield.
Pepper: (Miss) Patricia Winifred, B.Arch. (L'pool), Worcester.
Pickford: (Miss) Valerie Antonia, Oldham.
Pillinger: George Dennis, Ipswich.
Piper: Gerald Benjamin, Gosport.
Podleski: Czeslaw, Richmond, Surrey.
Porsolt: Imric Vojtech, Auckland, New Zealand.
Prescott: Jon Alfred, B.Arch. (L'pool), Liverpool.
Quin: John Friel, Wigan.

Ramsay: Robert, Dip.Arch. (Abdn.), Aberdeen.
Randall: David Ernest.
Randell: James Henry, D.A.(Edin.), Portobello.
Read: Harry Spencer, Bath.
Reeves: Eric Stanley, Nottingham.
Reyniers: Peter Edward James, A.A.Dipl.
Riche: Donald John Leslie, Dipl.Arch. (Northern Polytechnic), Gerrards Cross.
Riley: Rupert Brooke, B.Arch. (L'pool), Liverpool.
Ritter: John Albert.
Robinson: Robert Frederick Paul.
Roe: Stuart Alan, Nottingham.
Ross: Alan, Whitstable.
Sandwell: Sydney Thomas, Gosport.
Sargent: John Roy Alfred, B.Arch. (L'pool), Bishop Auckland.
Schofield: Frederick Bryce, Accrington.
Selby-Green: Michael, Tunbridge Wells.
Selkirk: Alexander Peter, D.A. (Edin.).
Sharma: Gulab Ghand, New Delhi, India.
Shaw: Charles Roger, Brighouse.
Shawcroft: Brian, Romford.
Shepherd: James Hunter, D.A. (Dundee), Markinch.
Spashett: Ernest Trevor, Oldbury.
Spooner: Frank James.
Spray: Geoffrey Frank, Plymouth.
Stables: John Margerison, Keighley.
Stachniewski: Jan, Nuneaton.
Stark: John George, Weymouth.
Stephens: Thomas George, M.B.E.
Stephenson: Arthur.
Stevenson: John David, Dipl.Arch. (Northern Polytechnic), Ewell.
Stone: Peter Reginald.
Stott: Francis Richard, Dip.Arch., Dip.T.P. (Manchester), St. Helens.
Stout: Ian, D.A. (Dundee), Dundee.
Street: Alan Peter, Dip.Arch. (Manchester), Manchester.
Stringer: Peter Haydn, Huddersfield.
Stroud: Eric Albert, Plymouth.
Swinson: Albert Henry, Macclesfield.
Syborn: Victor Jack, Oxshott.
Thomas: Gruffydd John Wynne, M.A. (Cantab.), Derby.
Thomas: Jeremy, B.A. (Cantab.).
Thurgood: Vernon John.
Tio: Seng Chin, Dip.Arch. (Dunelm), Singapore, Malaya.
Toohill: Leonard, Blackpool.
Topham: Charles Watkin, Dip.Arch. (Sheffield), Eccles.
Towler: Eric Robert, Cambridge.
Townsend: Sydney, Wakefield.
Trelawny-Ross: John P. T.
Tulloch: Ian Gordon, D.A. (Dundee), Forfar.
Turner: Ernest Neville, Grimsby.
Turner: Francis Anthony John, Wraysbury.
Turner: John Francis Charlewood, Yalding.
van der Westhuizen: Arthur Lee, Dip.Arch. (Pretoria), Pretoria, S. Africa.
Vaughan: Percy Wykeham Fabin.
Vincent: Peter Gordon, Mitcham.
Walford: (Mrs.) Dorice Constance, B.Arch. (Manitoba), Banbury.
Warner: Brian Geoffrey, Brighton.
Waugh: Keith, Hove.
Weeks: Leslie Alfred.
Westlake: Raymond Frederick, Leigh-on-Sea.
Wikeley: Nigel Derek Telford, Dip.Arch. (Sheffield), Harlow.
Williams: Ronald George.
Wilmot: Geoffrey Hamilton, Newcastle-under-Lyme.
Wilson: Anthony Sanderson, Northampton.
Wrightson: Michael, Dip.Arch. (Sheffield), Darlington.

AS LICENTIATES (8)

Durell: Harry, Newton Aycliffe.
Eccles: Eric James, Birkenhead.
Gibbons: Thomas George, Tunbridge Wells.
Gornall: James Thomas.
Lowman: Sydney John.
Martin: Arthur, Chippenham.
Sewell: Rupert Stanley Thomas.
Simson: John Hedley, Gateshead.

ELECTION: 6 JULY 1954

The following candidates for membership were elected on 6 July 1954.

AS ASSOCIATES (13)

Anandkar: Motiram Vinayak, Bombay, India.
Biermann: Barrie Eben, B.Arch., Ph.D.(C.T.), Durban, S. Africa.
Chhapia: Shashikant Vaikunthrai, Bombay, India.
Daniller: Boruch Hillel, B.Arch.(C.T.), Cape Town, S. Africa.
De Ridder: Johannes, B.Arch. (Pretoria), Pretoria, S. Africa.
Dyke-Wells: Donald Newsom, B.Arch. (Rand), Durban, S. Africa.
Groenewald: Johannes Adriaan Neser, B.Arch. (Pretoria), Pretoria, S. Africa.
Haughton: Robert Besant, Dip.Arch. (Auck., N.Z.), Wellington, New Zealand.
Lewcock: Ronald Bentley, B.Arch.(C.T.), Durban, S. Africa.
Palande: Dattatraya Shripad, Poona, India.
Rutherford-Smith: Robert Browne, B.Arch. (C.T.), Durban, S. Africa.
Savage: William Howard, Dip.Arch. (Rand), Port Elizabeth, S. Africa.
Short: Patrick Molison, B.Arch.(C.T.), Durban, S. Africa.

ELECTION: 12 OCTOBER 1954

An election of candidates for membership will take place on 12 October 1954. The names and addresses of the candidates with the names of their proposers, found by the Council to be eligible and qualified in accordance with the Charter and Bye-laws, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Tuesday 3 August 1954.

The names following the applicant's address are those of his proposers.

AS FELLOWS (10)

Barnard: Albert Edward [*A* 1929], 9 Victoria Street, S.W.1; 15 Lowther Road, Barnes, S.W.13. J. W. Macgregor, D. T. Wallis, F. C. Button.

Cantwell: Wilfrid John, B.Arch. (N.U.I. Dublin) [*A* 1945], 13 Fitzwilliam Place, Dublin; 18 Thornhill Road, Mount Merrion, Co. Dublin. J. O'H. Hughes, Vincent Kelly, Raymond McGrath.

Collins: Tom Anderson [*A* 1927], 123 London Road, Leicester; 7 Marydene Drive, Evington, Leicester. C. C. Ogden, Albert Herbert, T. W. Haird.

Cookson: Ronald Ewen, A.M.T.P.I. [*A* 1933], Commercial Chambers, 34 Derby Street, Ormskirk; 'Swinside', Formby Lane, Aughton, near Ormskirk. N. E. G. Weston, W. L. Lowe, Sir Lancelot Keay.

Cuzens: Gerald John [*A* 1946], 16 Arcade Chambers, Bognor Regis, Sussex; The Barn, Mill Lane, Walberton, Sussex. The late Niel Martin-Kaye, P. R. Fincher, Mrs. Audrey Compton.

Gasson: Alfred Stanley, A.R.I.C.S. [*A* 1934], 11 Waterloo Place, Leamington Spa, Warwickshire; 51 Overidge Road, Hall Green, Birmingham. E. H. Allsford, Guy Silk, H. Wilson-Wood.

Gauldie: William Sinclair [*A* 1943], 26 Commercial Street, Dundee; 'Waterside', Invergowrie, Dundee. John Needham, G. C. Young, T. H. Thoms.

Singleton: William Adam, Ph.D. (Manchester), M.A., B.Arch. (L'pool), Dip.T.P. (Manchester), F.S.A., A.M.T.P.I. [*A* 1940], School of Architecture, University of Manchester; 'Foxholes', Chelford Road, Prestbury, Cheshire. E. S. Benson, Prof. R. A. Cordingley, Prof. Clifford Holliday.

Smith: Jack [*A* 1939], 1 Church Street, Heckmondwike, Yorks; 3 Lumley Road, Dewsbury. J. Holt, S. C. Punchard, Hubert Bennett.

Wilson: James William Gilchrist [*A* 1928], c/o Cement and Concrete Association, 52 Grosvenor Gardens, S.W.1; 10 Page Heath Lane, Bickley, Kent. A. H. Ley, A. G. S. Fidler, A. G. Bray.

AS ASSOCIATES (87)

The name of a school, or schools after a candidate's name indicates the passing of a recognised course.

Amor: John Rex [Final], Lippitts Hill Lodge, High Beech, Loughton, Essex. T. E. North, Frank Risdon, Harold Conolly.

Archer: Bryan Russell (Arch. Assoc. (London): Sch. of Arch.), 1 Westland Road, Watford, Herts. Arthur Korn, H. G. Goddard, R. F. Jordan.

Arklie: (Miss) Patricia Ann (Northern Poly. (London): Dept. of Arch.), 31 Kingston Lane, Teddington, Middlesex. T. E. Scott, Harold Bramhill, C. G. Bath.

Ashworth: Fred, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 'Genesta', Glan-y-Mor Road, Penrhyn Bay, Llandudno, Caerns, N. Wales. T. E. Scott, Harold Bramhill, N. S. Morris.

Bagwell-Purefoy: Christopher Edward (Arch. Assoc. (London): Sch. of Arch.), 'Oakshaw', 25 Station Avenue, Walton-on-Thames, Surrey. R. F. Jordan, Arthur Korn, Henry Elder.

Ball: Dennis (Arch. Assoc. (London): Sch. of Arch.), 24 Carew Road, Ealing, W.13. Arthur Korn, R. H. Uren, J. A. Slater.

Ball: John Elliott, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 34 Browning Avenue, Sutton, Surrey. T. E. Scott, H. Bramhill, S. F. Burley.

Blakey: Gordon Wilson, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), 46 Wood Lane, Headingley, Leeds, 6. F. Chippindale, D. A. Fowler, W. H. King.

Bloom: Denis George, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 12 Landseer Road, N.19. T. E. Scott, Alister MacDonald, S. F. Burley.

Bowler: Graham Arthur, Dip.Arch. (Nottm.), (Nottingham Sch. of Arch.), 69 Grasmere Crescent, Sinfin, Derby. J. W. M. Dudding and the President and Hon. Secretary of the Nottingham, Derby and Lincoln Society of Architects under Bye-law 3(*a*).

Bray: Robert (Arch. Assoc. (London): Sch. of Arch.), 106 Queen's Gate, S.W.7. Arthur Korn, R. F. Jordan, C. E. Culpin.

Brock: Frank [Final], 4 Coppice Road, Moseley, Birmingham, 13. R. G. Morgan, D. H. Davies, Stuart Bentley.

Brooks: Denis Anthony, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), 15 Wentworth Street, St. Johns, Wakefield. F. Chippindale, Hubert Bennett, D. A. Fowler.

Cameron: Donald Samuel, D.A.(Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 'Inveree',

Gallanach Road, Oban, Argyll. L. G. MacDougall, F. R. Burnet, F. R. Wylie.

Chalmers: James Ower Dalgety, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 5 Bon-Accord Crescent, Aberdeen. E. F. Davies, G. A. Mitchell, J. A. Allan.

Chetwynd-Stapylton: Henry Philip, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), Willey Mill, Farnham, Surrey. Prof. L. B. Budden, C. H. Aslin, Frederick Gibberd.

Christopher: Graham, Dip.Arch. (Manchester) (Victoria Univ., Manchester: Sch. of Arch.), 4 Ballbrook Court, Wilmslow Road, Withington, Manchester, 20. Prof. R. A. Cordingley, L. C. Howitt, F. L. Halliday.

Coatman: John Sidney Berrill (Northern Poly. (London): Dept. of Arch.), 47 Scarsdale Villas, Kensington, W.8. T. E. Scott, A. G. Alexander, Z. Sirotkin.

Cook: William Leonard, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), Flat 5, Crescent Court, Tressillian Crescent, Brockley, S.E.4. T. E. Scott, S. F. Burley, H. Bramhill.

Cooper: Gerald, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), 66 Burlington Avenue, York. C. W. C. Needham, C. R. Thorp, F. Chippindale.

Crooke: Patrick William, A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), 1 Albert Terrace Mews, Regent's Park, N.W.1. R. F. Jordan and applying for nomination by the Council under Bye-law 3(*d*).

Davidson: Ronald James, D.A. (Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 6 Comely Bank Road, Edinburgh. Applying for nomination by the Council under Bye-law 3(*d*).

Davies: Ivor Frank, Dip.Arch. (Birm.) (Birmingham Sch. of Arch.), 160 Belgrave Road, Wyken, Coventry. A. Douglas Jones, T. M. Ashford, R. Hellberg.

Dunn: Kenneth William (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), Knockbarron, Up Hatherley, Cheltenham. G. H. Ryland, A. W. Ruddle, J. R. Tolson.

Duthie: Alexander Mitchell, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 57 Skateraw, Newtonhill, Kincardineshire. E. F. Davies, J. A. O. Allan, J. A. Allan.

Emmett: (Miss) Phyllis Margaret, A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), 71 Fentiman Road, S.W.8. Dr. J. L. Martin, H. F. Hoar, Colin Lucas.

Freer: Geoffrey Colin, Dipl.Arch. (Oxford), (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 6 St. Ronans Road, Reading, Berks. J. R. Tolson, T. T. Cumming, T. L. J. Chamberlain.

Gale: Reginald Leslie William, Dipl.Arch. (Oxford) (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 37 Kingsley Avenue, Barnstaple, N. Devon. F. Clemes, B. W. Oliver, T. W. Knight.

Garnett: Gordon William, Dip.Arch. (Nottm.) (Nottingham Sch. of Arch.), 11 Burford Road, Nottingham. A. E. Eberlin, L. Darbyshire, T. N. Cartwright.

Gordon: Stanley Mackay, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 46 Forest Road, Aberdeen. E. F. Davies, D. J. A. Ross, J. A. Allan.

Green: John Roger Bancks (Arch. Assoc. (London): Sch. of Arch.), Boundary Cottage, Ightham, Nr. Sevenoaks, Kent. Oscar Singer, C. H. Stableford, Arthur Korn.

Hadland: Brian John, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 61 Ingrebourne Gardens, Upminster, Essex. T. E. Scott, Prof. Sir William Holford, H. R. Ross.

Hague: John Henry, Dipl.Arch. (Oxford) (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 22 Eastcourt Avenue, Earley, Reading, Berks. J. R. Tolson, T. T. Cumming, T. L. J. Chamberlain.

Hampson: Ian Geoffrey, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 10 Candover Close, Harmondsworth, West Drayton, Middlesex. Prof. L. B. Budden, H. J. Stribling, Prof. R. Gardner-Medwin.

Hart: Stephen Nelson, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), The Grey House, Stamford, Lincs. Prof. L. B. Budden, Prof. R. Gardner-Medwin, Basil Spence.

Heath: Derrick Edward, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 23 Fairbridge Road, Upper Holloway, N.19. T. E. Scott, H. F. Robinson, C. G. Bath.

Herd: Douglas Hislop, D.A. (Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 'Meadowbank', Leslie, Fife. J. R. McKay, T. W. Marwick, L. G. MacDougall.

Hill: Edward Ewart, M.C.D., B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 81 Sea Bank Road, Wallasey, Cheshire. Prof. R. Gardner-Medwin, Prof. L. B. Budden, B. A. Miller.

Hitch: John Stewart [Special Final], 64 Gladstone Avenue, Twickenham, Middlesex. E. D. J. Mathews, A. B. Waters, A. L. Smith.

Hitchcox: Brian Neil, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), Loneoak, 5 Portley Lane, Caterham, Surrey. T. E. Scott, C. G. Bath, S. F. Burley.

Hockney: (Miss) Nancy Pinder, Dip.Arch (Nottm.) (Nottingham Sch. of Arch.), 'Clevelys', 13 Russell Avenue, New Balderton, Newark, Notts. F. Chippindale, D. R. Harper, C. St. C. Oakes.

Ingelbrecht: Douglas Marie Lucien [Final], 2A Aubrey Road, Walthamstow, E.17. T. E. Scott, S. F. Burley, C. G. Bath.

Lambert: John Brian, Dip.Arch. (Birm.) (Birmingham Sch. of Arch.), 34 Park Avenue, Stafford. A. Douglas Jones, C. E. M. Fillmore, T. M. Ashford.

McDonald: Donald Charles Hodgess, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), St. John's Lodge, St. John's Hill Road, Woking, Surrey. T. E. Scott, J. K. G. Sarjeant, C. G. Bath.

McGowan: David Keith, B.A. (Cantab.) [Final], 29 Gower Road, Quinton, Birmingham. W. P. Dyson, H. C. Hughes, L. T. Sloot.

Mainstone: Keith Lowry [Final], Architects Dept., Fairlawn House, Bristol Aeroplane Co., Filton, Bristol. Eric Ross, E. H. Button, T. H. B. Burrough.

Martyn: Roy Bruce, Dipl.Arch. (Oxford) (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 28A Halkett Street, St. Helier, Jersey, Channel Islands. H. C. Ashenden, Harold Anderson, the late E. A. L. Martyn.

Mathieson: Alexander John, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), 1 Weetwood Avenue, Leeds, 6. F. Chippindale, W. H. King, N. H. Fowler.

Matthews: John Wick Kenyon [Final], Netley House, Merchants Road, Clifton, Bristol, 8. J. N. Meredith, E. H. Button, T. H. B. Burrough.

Miller: Harry Preston, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), 9 Raynville Grove, Bramley, Leeds, Yorks. D. A. Fowler, F. Chippindale, Hubert Bennett.

Mirkowski: Roman, Dip.Arch. (Manchester) (Victoria Univ., Manchester: Sch. of Arch.), 83 Upperton Road, Leicester. Prof. R. A. Cordingley, Prof. Clifford Holliday, E. S. Benson.

Monson: John Edward, B.A. (Cantab.) (Arch. Assoc. (London): Sch. of Arch.), The Mulberry Bush, 73 High Street, Bushey, Herts. R. E. Enthoven, W. R. F. Fisher, Arthur Korn.

Morris: Alan Croft Faulkener (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 96A Lee Road, Blackheath, S.E.3. Denis Clarke Hall, Richard Sheppard, F. R. S. Yorke.

Murdoch: James Wilson Henry, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), Bellevue, Bruce Street, Macduff, Banffshire. E. F. Davies, D. J. A. Ross, J. A. Allan.

Murphy: Gerald James (Arch. Assoc. (London): Sch. of Arch.), 53 Sunny Bank, Potters Bar, Middlesex. Arthur Korn, H. G. Goddard, R. F. Jordan.

Norman: Frank George, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 125 Mead Way, Bushey, Herts. T. E. Scott, C. G. Bath, S. F. Burley.

Orpen: John Patrick Preston, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 55A Cornwall Gardens, Kensington, S.W.7. T. E. Scott, C. V. Ponder, F. O. Eaton.

O'Shea: Peter Denis, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 92 Willow Tree Lane, Hayes, Middlesex. T. E. Scott, S. F. Burley, Harold Bramhill.

Pennycook: Ian James, Dipl.Arch. (Leeds) (Leeds Sch. of Arch.), 24 Upland Crescent, Leeds, 8, Yorks. F. Chippindale, D. A. Fowler, Hubert Bennett.

Phillips: Derek Reginald Higham, M.Arch. (Mass. Inst. Tech.), M.C.D., B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), School House, Market Drayton, Shropshire. Prof. R. Gardner-Medwin, Prof. L. B. Budden, B. A. Miller.

Preston: (Mrs.) Mary Margaret (*née* Spokes), Dipl.Arch. (Oxford) (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 31 and 33 Walton Well Road, Oxford. Thomas Rayson, G. R. Hutton, J. R. Tolson.

Pritchard: William, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), 46 Forest Road, Aberdeen. E. F. Davies, D. J. A. Ross, J. A. Allan.

Ridsdale-Saw: Benjamin Robert, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 1 Hubert Road, East Ham, E.6. T. E. Scott, Harold Bramhill, S. F. Burley.

Roberts: Brian Glyn (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 61D Lansdowne Road, Bournemouth. A. E. Geens, M. G. Cross, T. L. J. Chamberlain.

Robertson: James Stewart, D.A. (Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 18 Craigentinny Crescent, Edinburgh, 7. T. W. Marwick, W. I. Thomson, J. R. McKay.

Rowlands: John Dennis [Final], 30 Church Street, Weybridge, Surrey. C. J. Epril, L. A. Chackett, F. L. Preston.

Scrivins: Derek Cyril [Final], 29 St. Peter's Hill, Grantham, Lincs. F. J. Lenton, G. A. Crockett and the President and Hon. Secretary

of the Nottingham, Derby and Lincoln Society of Architects under Bye-law 3(*a*).

Shores: John Evelyn [Final], 48 The Link, Anlaby Park, Hull. J. Konrad, Harry Andrew, Allanson Hick.

Smith: Raymond Gerald, A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), 20 Wolseley Road, Wealdstone, Harrow, Middlesex. D. H. McMorran, Horace Farquharson, E. V. Harris.

Stafford: (Mrs.) Christine Aline, M.A. (Cantab.), A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), Grainingfold Farm, Billingshurst, Sussex. Sir Hugh Casson, R. E. Enthoven, James Melvin.

Stafford: Hugh John Widdrington, B.A. (Oxon.), A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), Grainingfold Farm, Billingshurst, Sussex. Sir Hugh Casson, R. E. Enthoven, James Melvin.

Stephen: Douglas Cruden, A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), 103 St. Mark's Road, W.10. H. T. Cadbury-Brown, R. F. Jordan, Arthur Korn.

Stirling: John, Dip.Arch. (The Polytechnic) (The Poly., Regent Street, London: Sch. of Arch.), 26 Belsize Park Gardens, N.W.3. J. S. Walkden, David Stokes, C. E. Culpin.

Sturgis: Charles Timothy (Arch. Assoc. (London): Sch. of Arch.), 82 Chelsea Park Gardens, S.W.3. Arthur Korn, H. G. Goddard, R. F. Jordan.

Sumpster: David Brian, B.A.(Arch.) (Lond.) (Bartlett Sch. of Arch.: Univ. of London), 129 Norcot Road, Tilehurst, Reading, Berks. Prof. H. O. Corfiato, W. A. Eden, R. C. White-Cooper.

Taylor: Arthur Francis Kenneth, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 17 Long Ridges, Fortis Green, N.2. T. E. Scott, Frankland Dark, H. Bramhill.

Thomas: Ernest Reginald John [Final], 12 Elizabeth Barrett Walk, Newton Aycliffe, Co. Durham. A. B. Waters, G. R. Dawbarn, Mrs. M. P. Cahill.

Turnbull: Gerald Anthony, A.A.Dipl. (Arch. Assoc. (London): Sch. of Arch.), 29 Ludgate Hill, E.C.4. Arthur Korn, Henry Elder, R. F. Jordan.

Turner-Davis: Bernard, M.C.D., B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 'The Miltons', Heatherton Park, W. Buckland, Wellington, Somerset. Prof. R. Gardner-Medwin, Prof. L. B. Budden, B. A. Miller.

Walker: Philip Royston [Final], 4 Hilsea Green, Hilsea, Portsmouth. A. C. Townsend, F. R. Steele, G. J. Jolly.

Ward: Geoffrey Edward, Dipl.Arch. (Oxford) (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 11 Buckingham Avenue, Feltham, Middlesex. Prof. A. E. Richardson, E. A. S. Houfe, David Beecher.

Waterhouse: (Miss) Prudence Mariabella, B.A. Cantab. [Final], 4/23 Clanricarde Gardens, W.2. S. R. Pierce, Michael Waterhouse, Cedric Ripley.

Webb: Peter John, Dipl.Arch. (Northern Polytechnic) (Northern Poly. (London): Dept. of Arch.), 23 Singleton Scarp, Woodside Park, N.12. T. E. Scott, D. du R. Aberdeen, M. H. Thomas.

Willis: Geoffrey Ernest [Final], 28 Northease Drive, Hove, 4. Sussex. K. E. Black, S. H. Tiltman, J. L. Denman.

Wilson: Michael [Final], 50 Pavilion Road, Worthing, Sussex. F. R. Steele, K. E. Black and applying for nomination by the Council under Bye-law 3(*d*).

Winch: Derek John, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 53 Slades Hill, Enfield, Middlesex. Prof. R. Gardner-Medwin, F. G. A. Hall, Prof. L. B. Budden.

Wrightam: Eric Ernest, Dip.Arch. (Nottm.) (Nottingham Sch. of Arch.), 5 Brackens Avenue, Alvaston, Derby. J. W. M. Dudding and the President and Hon. Secretary of the Nottingham, Derby and Lincoln Society of Architects under Bye-law 3(*a*).

AS LICENTIATES (4)

Berry: George William, Architectural Dept., Town Hall, Torquay; 83 Torridge Avenue, Torquay. G. R. Todd, Edward Narracott, J. E. Tyrrell.

Clark: Harry Richard, County Architect's Dept., 15 Portland Square, Carlisle; 4 Crown Road, Belle Vue, Carlisle. J. H. Haughan, Stephen Mann, C. B. Martindale.

Edgar: Stanley White, c/o Messrs. Dick Peddie, McKay and Jamieson, 8 Albyn Place, Edinburgh; 40 Silverknowes Crescent, Edinburgh, 4 J. R. McKay, Frank Wood, Donald Jack.

Turner: George Henry, 38A Louth Road, Scarthoe, Grimsby; 131 Waltham Road, Scarthoe. H. S. Hall and the President and Hon. Secretary of the Nottingham, Derby and Lincoln Society of Architects under Bye-law 3(*a*).

ELECTION: 2 NOVEMBER 1954

An election of candidates for membership will take place on 2 November 1954. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Saturday 16 October 1954.

The names following the applicant's address are those of his proposers.

AS FELLOW (1)

Cook: Weymouth Keith, Dip.Arch. (Auck., N.Z.) [*A* 1932], Andrews Avenue, Lower Hutt, New Zealand; 10 Myrtle Street, Lower Hutt. R. H. Uren, J. A. Slater, R. N. Wakelin.

AS ASSOCIATES (5)

Archer: Christopher John, Dipl.Arch. (Oxford) (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), c/o Messrs. Cobb, Archer and Scammell, P.O. Box 58, Nairobi, Kenya. R. S. Cobb, E. D. Hill, H. D. Archer.

Eales: Keith Symmington [Passed a qualifying Exam. approved by the R.A.I.A.], 55 Wickham Terrace, Brisbane, Queensland, Australia. C. Fulton, R. P. Cummings, T. B. F. Garget.

Heller: Joseph [Special Final], 103 Bialik Street, Ramat Gan, Israel. Applying for nomination by the Council under Bye-law 3(*d*).

Pentland: William Thomas, B.Arch. (Toronto) (Univ. of Toronto, Canada; Sch. of Arch.), Messrs. Pentland, McFarland and Baker, 490 Jarvis Street, Toronto, Ontario, Canada. Prof. E. R. Arthur, R. S. Morris, W. L. Somerville.

Tudhope: John Robertson, B.Arch. (Rand) [Passed a qualifying Exam. approved by the I.S.A.A.], P.O. Rex, Rustenburg District, Transvaal, S. Africa. Prof. A. L. Meiring, V. S. Rees-Poole, C. S. Lodge.

Obituaries

Norval Rowallan Paxton, M.C. [*F*], former Vice-President R.I.B.A. and past President of the West Yorkshire Society of Architects, died on 30 March 1954, aged 61.

Mr. Norman Culley [*F*] writes:

'Mr. Paxton was born at Fenwick, Ayrshire, received his general education at Paisley Grammar School and the Royal Technical College, Glasgow, and served articles with Messrs. Watson, Salmond & Grey of Glasgow, and returned to them later as assistant. He was for a time in the office of Messrs. Sandy & Norris of Stafford, and in 1921 assistant to Mr. G. F. Bowman of Leeds.

'In the first world war Paxton was a Captain in the Scottish Rifles and saw service in France and Egypt, and was awarded the Military Cross.

'In December 1929 he began practice on his own account in Leeds. Among his works are a biscuit factory in York Road, Leeds; a factory for Yorkshire Copper Tubes; a camp at Pateley Bridge for the National Camps Association; and a golf club-house, Garforth. He had considerable ability for organisation and an urge to devote that ability and his great energy to the interests of the profession, not only in West Yorkshire but nationally.

'Mr. Paxton was a Vice-President R.I.B.A. 1950–52, Chairman of the Allied Societies' Conference 1950–52, President of the West Yorkshire Society of Architects, 1946–48, Chairman of Allied Societies Secretaries for four years, and Hon. Secretary of the West Yorkshire Society of Architects for 16 years. He was for many years a member of the Council of the R.I.B.A. and the Executive Committee and had also served on the following Boards and Committees: Public Relations Committee, Board of Architectural Education, Maintenance Scholarships Committee, Registration Committee, Practice Committee, Royal Gold Medal Committee, Co-ordination Committee, Sub-Committee on Private Practitioners and Official Architects, and the A.R.C.U.K. Council, Board of Architectural Education and Admission Committee. He was also the representative of the Royal Institute on the Building and Civil Engineering Regional Joint Production Committee (Region 2) and the Regional Housing Production Board (Region 2).

'He was a member of the Leeds College of Art Advisory Sub-Committee, Member of the Yorkshire Educational Association for the Building Industry, Chairman of the Leeds and District Property Owners Association, and a Fellow of the Institute of Arbitrators. He was a Mark Master Mason of the Lodge of Kilwinning and a joining member of St. Michael's Lodge, Headingley.

'The commencement of his period of illness was in 1952, when on arriving home in Harrogate after attending meetings in London he collapsed. His heart was not equal to the physical strain of his activities for the benefit of the profession. He loved active life and seized upon the opportunities for voluntary service. His loss will be felt greatly, including the loss to the writer of an esteemed professional friend, and he leaves a gap difficult to fill.'

Harvey Wiley Corbett [*F*] died in New York on 21 April, aged 80 years.

Mr. Corbett was born in California and educated at California University and at the Ecole des Beaux-Arts, Paris. After designing the Bush Terminal Building in New York he was invited to design Bush House, Aldwych—his only London building. His chief works in America are the new law courts in New York, the Washington Freemasons' memorial at Washington and his part in the Rockefeller Centre, and he made a distinctive contribution to American architectural theory in his exploitation of the New York zoning laws of 1925. He evolved the idea of the 'envelope' determined by zoning to maintain light to adjoining buildings, which is now becoming accepted practice in the planning of central urban areas. In the 1920's Mr. Corbett was a protagonist of the skyscraper, but changed his mind in the '40's, partly because of bombing, partly because he thought they caused congestion in the streets. He was always interested in the future of architecture, and was fond of making predictions, such as that by 1975 New York buildings would be half a mile high, commuters would be shot through pneumatic tubes at ninety miles an hour and that there would be three street levels—bottom for rapid transit, middle for vehicles and top for pedestrians. As early as 1926 he was urging cities to develop easy access to airports, predicting that air travel would affect architecture as profoundly as other transportation had. In the 1930's he predicted the coming of prefabrication of houses.

In designing Bush House Corbett was well aware of the historic associations and the importance of the site. On one side were the churches of St. Mary le Strand and St. Clement Danes and on the other the termination of the new street of Kingsway. For the churches he provided a background which enhanced their delicate form, and at the end of Kingsway a terminal feature of exactly the right scale for so dominating a position. His detail may nowadays be considered *démodé*, but there are solid virtues of form, grouping and planning in Bush House which made it at the time it was built easily the best office building in London and which today make it still an outstanding contribution to a city of fine buildings. A bald, unimaginative, purely commercial building on such a site could have been a disaster.

Mr. Corbett was on the architectural committees of the Chicago and New York World's Fairs in 1933 and 1939, and in March last he received the annual award of the New York Chapter of the American Institute of Architects.

He had in his earlier years lectured on architecture at Columbia University and served as a member of the advisory board of the school of architecture at Princeton University and of the Fine Arts Commission of the State of New York. He was a departmental editor on architecture for the new edition of *The Encyclopaedia Britannica*. He was elected a Fellow of the R.I.B.A. in 1925. He held the degree of Hon.M.Arch. of Liverpool University.

Harold William Moore [*F*] died on 21 March, aged 54.

Mr. Moore trained at the Northern Polytechnic and from 1924 to 1938 was chief assistant to the firm of E. Keynes Purchase and Roland Welch. On the death of the last surviving partner Mr. Moore continued the practice. In 1940 he joined the panel of architects on the War Damage Commission and continued with them until 1943. In 1942 he went into partnership with A. H. Durnford [*L*] and practised under the name of Durnford and Moore. This partnership was dissolved in December 1948 and Mr. Moore began practising under his own name in January 1949.

Before the war he was responsible for the design of many houses built at Hampstead Garden Suburb. Towards the end of the war, while he was in partnership with Mr. Durnford, he was engaged in a housing programme for the Penge U.D.C. consisting of the conversion of a number of large Victorian houses into flats. Late in 1949, when he was practising alone, he was responsible for a new housing scheme for Penge. This consisted of 86 flats in Croydon Road, S.E.20. Other flats have since been completed, and contracts were in hand and drawings prepared for others at the time of Mr. Moore's death.

Mr. Moore was architect to Messrs. W. Edwards (London) Ltd., and designed several extensions to their London premises. He also designed a new factory at Crawley New Town, the Crawley Development Corporation acting as consulting architects. This was completed in 1953.

Thomas William Vivian May [*Retd. F*] died on 15 February, aged 65.

Mr. May was educated at the City of London School and trained with the Office of Works and in the office of Sir Henry Tanner. When the first world war broke out he was in camp with L.R.B. and at once went overseas. He held the Mons Star. In 1919 he joined the Singapore Harbour Board. In the same year he received the Freedom of the City of London. After four years as assistant architect to the Board he transferred to government service and at the time of his retirement in 1936 was Government architect for Johore. Among the buildings designed by him are Penang Hospital and the police barracks in Singapore. He was a member of Johore Legislative Council.

A model of the Singapore docks which was sent to the Wembley Exhibition was designed by Mr. May.

On retirement Mr. May came back to Great Britain, practising in Cornwall, at Lostwithiel, where he was for some time a member of the Town Council.

John Stewart [*F*] died on 17 March, aged 85.

Mr. Stewart studied at Edinburgh School of Art and served articles with Mr. A. Heaton of Perth, Sir Rowand Anderson of Edinburgh and James Burnet & Son, Glasgow. He was Owen Jones Student 1899 and started in private practice, in partnership with George A. Paterson, in 1901.

Mr. Stewart built churches at Broomhill, Giffnock, Burnside and elsewhere, hospitals at Auchterader and Bridge of Earn, mansions at Coldoch and Argaty in Perthshire and at Bystone in Lanarkshire, and several housing estates, including the Kirkmichael Housing Estate at Helensburgh.

The practice of Stewart and Paterson is now carried on by Mr. David Hally [*L*], at 110 Blythswood Street, Glasgow, C.2.

Harold Ridley Hooper, O.B.E., M.C., T.D., D.L. [*A*], died on 5 August 1953, aged 68.

Colonel Hooper practised throughout his career in Ipswich, where he had served his articles. He began personal practice in 1912 and from 1924 to 1934 was in partnership with Mr. Cyril Proctor Garrard, M.C. [*A*], from 1946 to 1953 with Mr. B. W. J. Olley [*A*], who carries on the practice. He was responsible for the Eastern Counties Building Society's premises in Ipswich, and for those of Messrs. Garrod Turner, besides a number of licensed houses and other works. He also carried out work at Stoke Park, Belstead, for Lord Belstead.

Mr. Olley writes of his late partner: 'Colonel Harold Hooper was an outstanding personality in the social and civic life of Ipswich and Suffolk. He had a distinguished military career and served in both world wars, and at one period was Colonel of the 4th Battalion Suffolk Regiment and during the last war organised and commanded the local Home Guard. He was for a period a councillor on the Ipswich Borough Council, also a Deputy Lieutenant of the County of Suffolk.'

John Glen Dunn, F.R.I.A.S. [*F*], died on 5 March, aged 77.

Mr. Dunn began his career, as a young bricklayer in Glasgow, by attending evening classes in architecture at the Royal Technical College, Glasgow. The late Professor Charles Gourlay [*A*] took an interest in him and encouraged him to pursue his architectural studies. He became a Licentiate of the Institute in 1911 and a Fellow in 1921. His architectural works included housing schemes at Cambuslang, community centres, miners' welfare centres, various houses and cottages and halls, additions to the Clyde Paper Mills and to the Scottish Wire Rope Works. He also taught building construction at Hamilton Academy for twenty years, and taught too at Cambuslang Public School. Mr. Dunn was particularly expert in tall chimney construction, and was often called in on this aspect of building in an advisory capacity.

As a young man Mr. Dunn served for a time on the Council of the Glasgow Institute of Architects. He was a keen Burns enthusiast and a keen bowler, and a member of Royal Arch Lodge 114.

Alfred Percy Morgan [*A*] died on 17 February 1953, aged 60, in Whangarei, New Zealand, where he had lived and practised since 1923. He was N.Z.I.A. Gold Medallist in 1938.

Mr. Morgan was born in London but went to New Zealand at the age of 10. He joined up and went overseas in the first world war, and after the war studied at the Architectural Association, becoming an Associate of the Institute in 1920. He returned to New Zealand in 1923 and settled in Whangarei. Among his architectural works are St. Francis Xavier's Roman Catholic Church in that town, a new nurses' home and all the hospital wards built in the town over the last twenty years, the Whangarei Racing Club, the main hostel of the Whangarei Girls' High School, in association with Mr. Horace L. Massey [*F*] and, also in association with Mr. Massey, the Whangarei public library for which the N.Z.I.A. Gold Medal was awarded.

Joseph Aldridge [*Retd. L*] died on 7 April, aged 80.

Mr. Aldridge was articled to Mr. John Loughborough Pearson [*F*] of Moorgate Street, London, in approximately 1892, and practised thereafter in Chelsea and Ilford. The principal work with which he was concerned was the Valentine Estate, Ilford, and he also designed cinemas in the Barking, Leyton and Walthamstow areas. In the first world war he joined the Chelsea Aviation Company to work on an early type of biplane, and in the second world war he did a considerable amount of work on the enlargement and adaptation of factories for war work. He retired in 1952.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Ian Colquhoun [*A*] has been appointed architect to The Wall Paper Manufacturers and will practise from the London office of the Company, 125 High Holborn, W.C.1 (HOLborn 2921).

Mr. A. F. Hobbs [*A*] has taken up the appointment of Housing Architect with the Bathavon Rural District Council and will be pleased to receive trade catalogues, etc., at 8 Cleveland Place East, Bath.

Mr. Robert B. Rankin [*A*] has been appointed chief architect to Messrs. Blackburn (Dumbarton) Ltd., Castle Road, Dumbarton, Scotland, and will be pleased to receive trade catalogues, etc.

Mr. Kenneth M. Raw [*A*], Chief Assistant Architect to the Anglesey County Council, has been appointed Assistant Deputy Education Architect to the Staffordshire County Council.

Mr. W. A. Ross, C.B.E. [*F*], late Director of Works and Services, Ministry of Works, Scotland, has joined the firm of Ernest J. Thomas Jolly & Grant of Portsmouth, Brighton and Isle of Wight as their London associate. Trade catalogues will be welcomed at 5 The Garth, Holden Road, London, N.12.

PRACTICES AND PARTNERSHIPS

Messrs. Willink & Dod [*FF*] of Liverpool have taken into partnership **Mr. Philip Dod** [*A*]. The style and title of the firm will remain as before.

Mr. John H. Evans [*A*] has begun practice at Tredegar Chambers, Bridge Street, Newport, Mon. (Newport 4546), where he will be pleased to receive trade catalogues, etc.

Elizabeth Griffiths [*A*] has begun practice at 19 North Road, Caernarvon, and will be pleased to receive trade catalogues, etc., at that address.

Mr. Peter R. Guilmant [*A*] has taken over the practice of Mr. V. Hall [*A*] at 28 Sea Road, Bexhill-on-Sea, Sussex, where he will be pleased to receive trade catalogues, etc.

Mr. H. A. Hickson [*F*] has taken into partnership his son, **Mr. Peter A. Hickson** [*A*]. The firm will in future practise under the style of H. A. Hickson & Son, 51 Hall Gate, Doncaster (Doncaster 3775).

By mutual agreement **Mr. R. F. Malcolmson** [*A*] has ceased to be a partner in the firm of **G. P. and R. H. Bell and R. F. Malcolmson.** The practice is being carried on under the same title as formerly by Mr. G. P. Bell and Mr. R. H. Bell [*AA*] at 26/27 Ocean Buildings, Donegall Square East, Belfast.

Mr. J. H. Wales [*A*] is beginning practice under the name of Howard Wales & Co. at 25 Lidgett Park Row, Leeds, 8 (Leeds 66/4137), and will be pleased to receive trade catalogues, etc.

The practice previously carried out in Windermere by **Mr. Frank H. Walker** [*F*] and Mr. J. Carter [*F*] at Windermere under the title of Walker, Carter & Walker has been dissolved by mutual consent, and in future Mr. Walker will be practising under his own name from the same address—Institute Buildings, Windermere.

CHANGES OF ADDRESS

Mr. Adrian Beckett [*A*] has moved to 46 Wasdale Road, Wakefield, Yorks.

Mr. Ian Burke, A.M.T.P.I. [*A*], formerly of 1 Overgate, Dundee, has removed his office to 11 South Tay Street, Dundee. The telephone number, Dundee 2995, remains unchanged. He has also opened an office, in partnership with **Mr. William M. Greig** [*A*], at Olympia Buildings, Market Place, Arbroath (Telephone 2095) under the style of Burke and Greig.

Mr. Frank Lee Evans, A.M.T.P.I. [*A*], has moved from Bulawayo to Salisbury, Southern Rhodesia, where he is in charge of the branch office of Messrs. Ayers, Wilson & Parker [*AAA*] at 3 Leander House, Jameson Avenue, Salisbury, Southern Rhodesia.

Messrs. Fairbrother, Hall and Hedges [*LL*] announce that their telephone number has been changed to Blackpool 26634/5. Their address remains the same.

Mr. Douglas Fennell [*A*] has removed to Ellesmere, Mouldworth, nr. Chester, Cheshire (Manley 331), where he will be pleased to receive trade catalogues.

Messrs. Fowell, Mansfield and Maclurcan [*FFA*] have moved their offices from 70 King Street and 86 Elizabeth Bay Road, Sydney, to premises on the fifth floor of the new building erected for the Australian Mutual Provident Society at 40 Miller Street, North Sydney.

The address of **Mr. William A. Garth** [*A*] is now Government Architect's Office, Ministry of Works, Wellington, New Zealand.

Mr. W. Harold Jones [*F*] has moved his office from 55 Victoria Street, S.W.1, to 8 Red Lion Square, Holborn, W.C.1 (CHAncery 7739).

The new address of **Mr. R. D. Lyons** [*A*] is c/o Regional Architect's Office, P.W.D. Secretariat, Ibadan, Nigeria.

Mr. Philip Guymer Maw [*A*] has changed the address of his practice to Anlaby House, Baker Avenue, Salisbury, Southern Rhodesia. The post office box number 1994 remains unaltered.

Samuel Morrison and Partners (Samuel Morrison, G. E. Grey and W. J. Farmer [*AAA*]) have moved to new offices at St. Alkmunds House, 103 Belper Road, Derby (Derby 49287/8/9).

Mr. Walter Rosser [*F*] has removed his offices to 15 Wood Street, Northampton.

Mr. John Smith [*A*] has changed his address to 14 Hereford Road, London, W.2 (BAYswater 4987).

Mr. A. J. Stevens [*A*] has changed his address to 8 Scoles Green, Norwich, Norfolk.

Mr. J. A. Wells-Thorpe [*A*] has moved to 60 Surrenden Road, Withdean, Brighton, 6 (Brighton 56572).

Messrs. Willis and Jenkins [*AA*] have changed their address to 7th Floor, A.A. House, Queen Victoria Street, Cape Town.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate aged 37 with wide experience and competition winner seeks partnership or position leading thereto in Shropshire area. Some capital available. Box 54, c/o Secretary, R.I.B.A.

Fellow returning from Scandinavia in autumn seeks partnership or position leading thereto. Southern England preferred (not London). Capital available. Box 67, c/o Secretary, R.I.B.A.

Associate, 33 (D.A. Edin.), with varied practical experience, seeks partnership or position leading thereto in London, Home Counties or East Anglia. Small capital available if required. Box 69, c/o Secretary, R.I.B.A.

London members in practice looking for means of expansion would be prepared to purchase busy practice or enter into agreement to run practice of architect wishing to semi-retire, in London or southern England. Box 70, c/o Secretary, R.I.B.A.

Associate (B.Arch. L'pool), 40, varied experience, seeks partnership or position leading thereto. North-east midlands preferred. Some capital available. Box 72, c/o Secretary, R.I.B.A.

Associate, 32, seeks junior partnership or position leading thereto in established practice. Good post-war practical experience, including domestic, industrial and educational work. Capital available. Box 73, c/o Secretary, R.I.B.A.

Senior Fellow desires to meet experienced member, preferably over 35 years, with view to partnership in long-established London practice. Box 75, c/o Secretary, R.I.B.A.

Practice of deceased Fellow for sale. Modern office in west end of London with about 13 years' unexpired lease. Rent £350 per annum. Box 68, c/o Secretary, R.I.B.A.

Fellow will be pleased to correspond with any member desirous to purchase a share in his practice. He has been in practice in London for over 30 years and is at present engaged on several ecclesiastical and other works, with new offices in the Holborn area. Applicant (30–40) must be qualified and fully conversant with the running of an office. Box 71, c/o Secretary, R.I.B.A.

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For sale. Stanley 14-in. level complete with box, staff and tripod, very good condition. £21. Box 66, c/o Secretary, R.I.B.A.

ACCOMMODATION

Member requires office, one or two rooms, in S.W.1 or W.1 area. Box 74, c/o Secretary, R.I.B.A.

CORRECTION

In Members' Column in the April JOURNAL the address of Messrs. Brandon-Jones, Ashton and Broadbent [*AAA*] was given as 2 Redington Road, Hampstead, N.W.4. The postal district is N.W.3.

The Royal Institute of British Architects, as a body, is not responsible for statements made or opinions expressed in the JOURNAL.

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		per sq.	per sq. yd.	per sq.	per sq. yd.	per sq.	per sq. yd.
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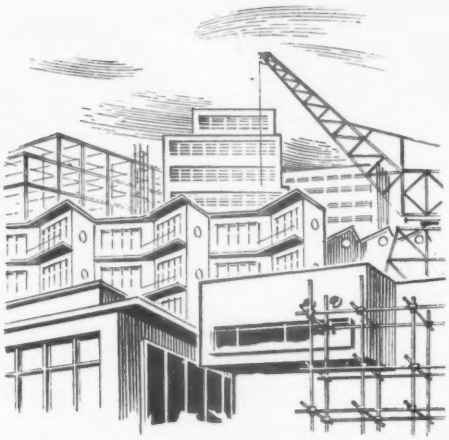
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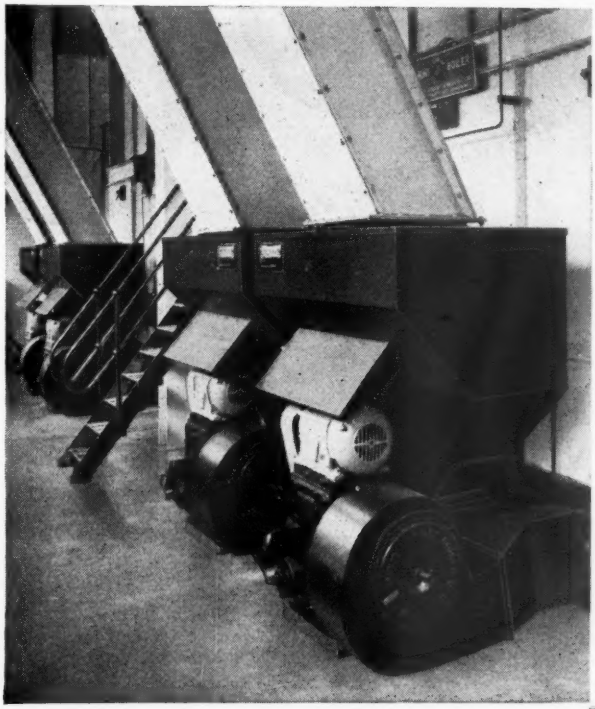
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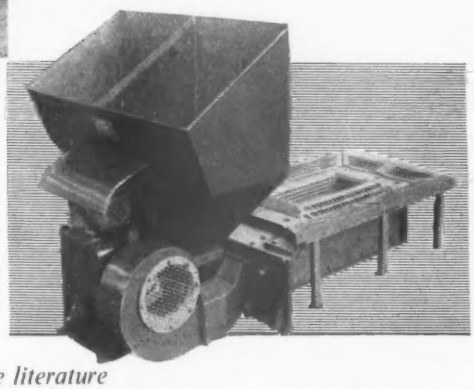
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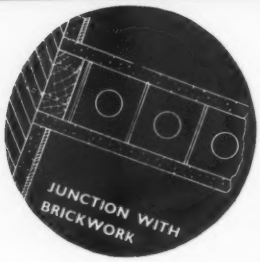
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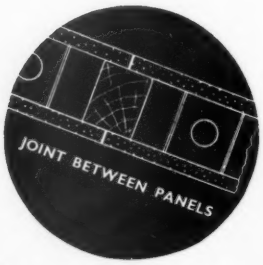
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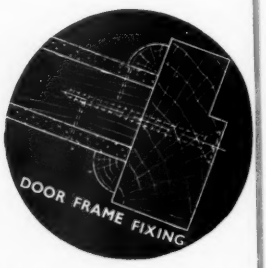
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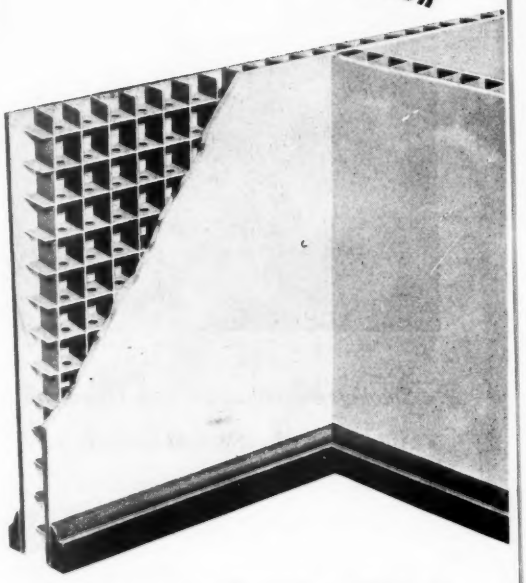






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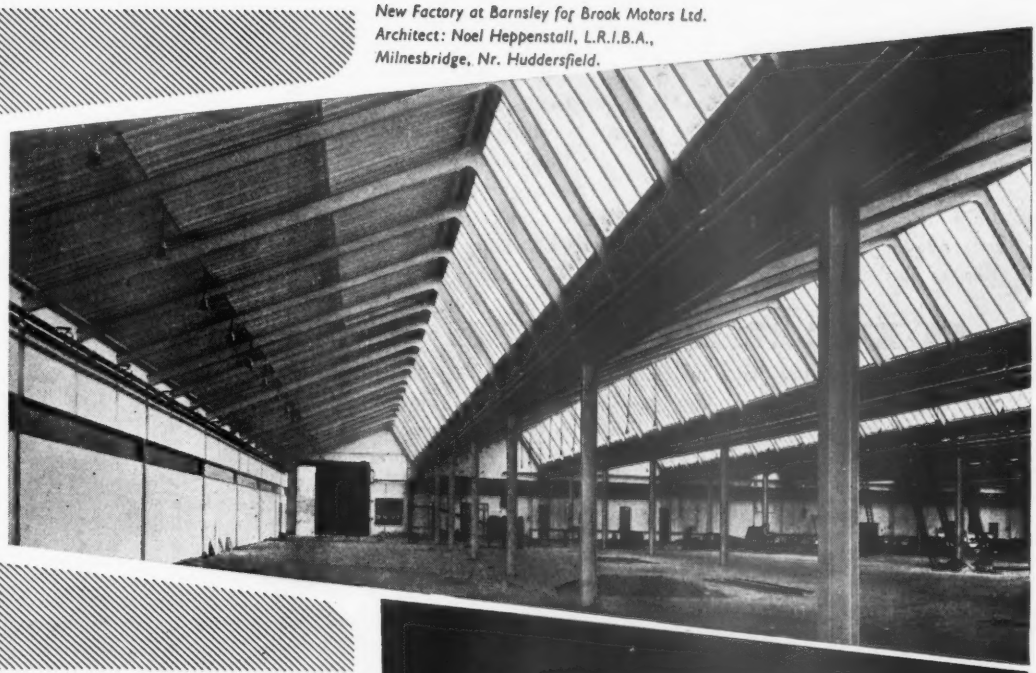
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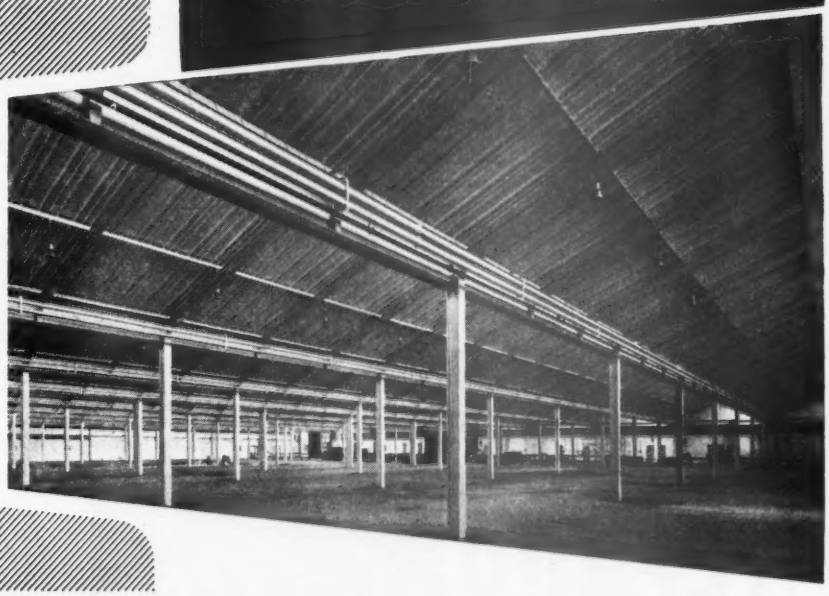
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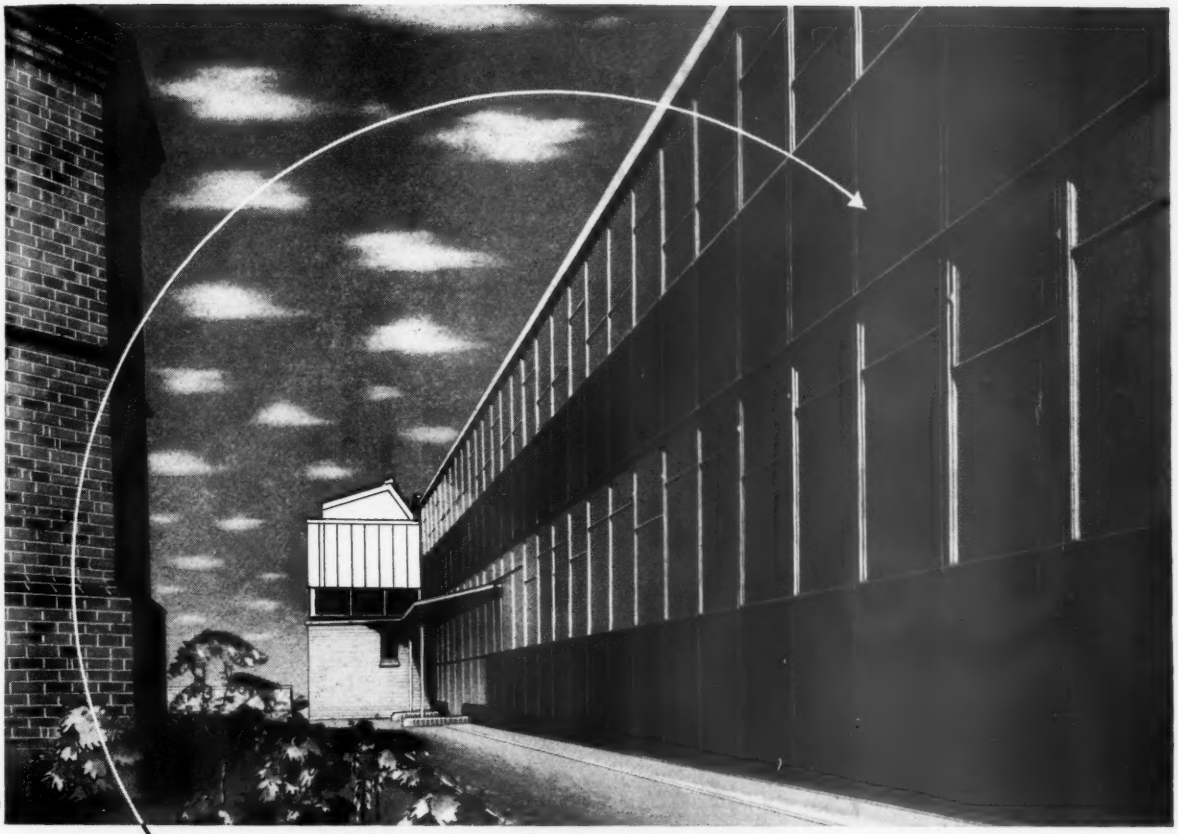
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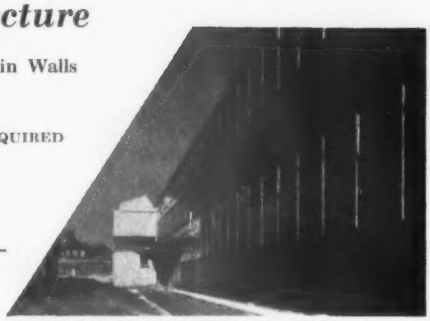
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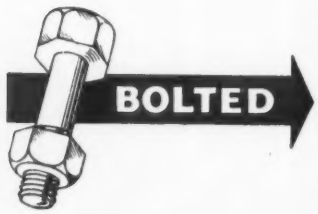
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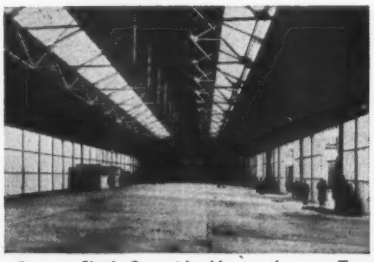
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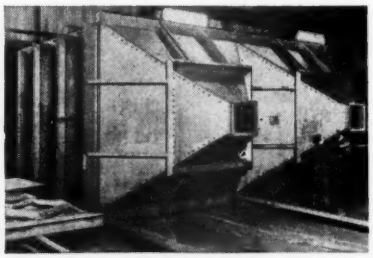
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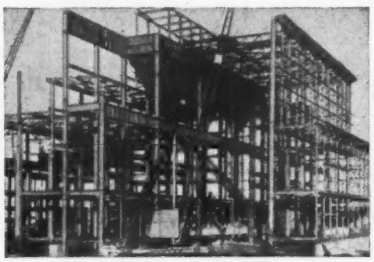
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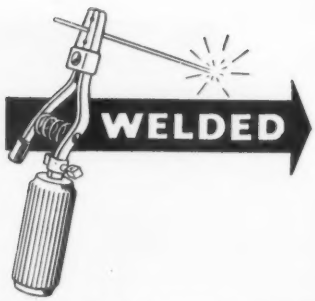

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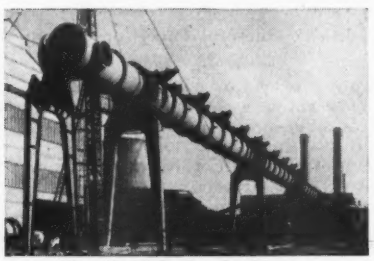

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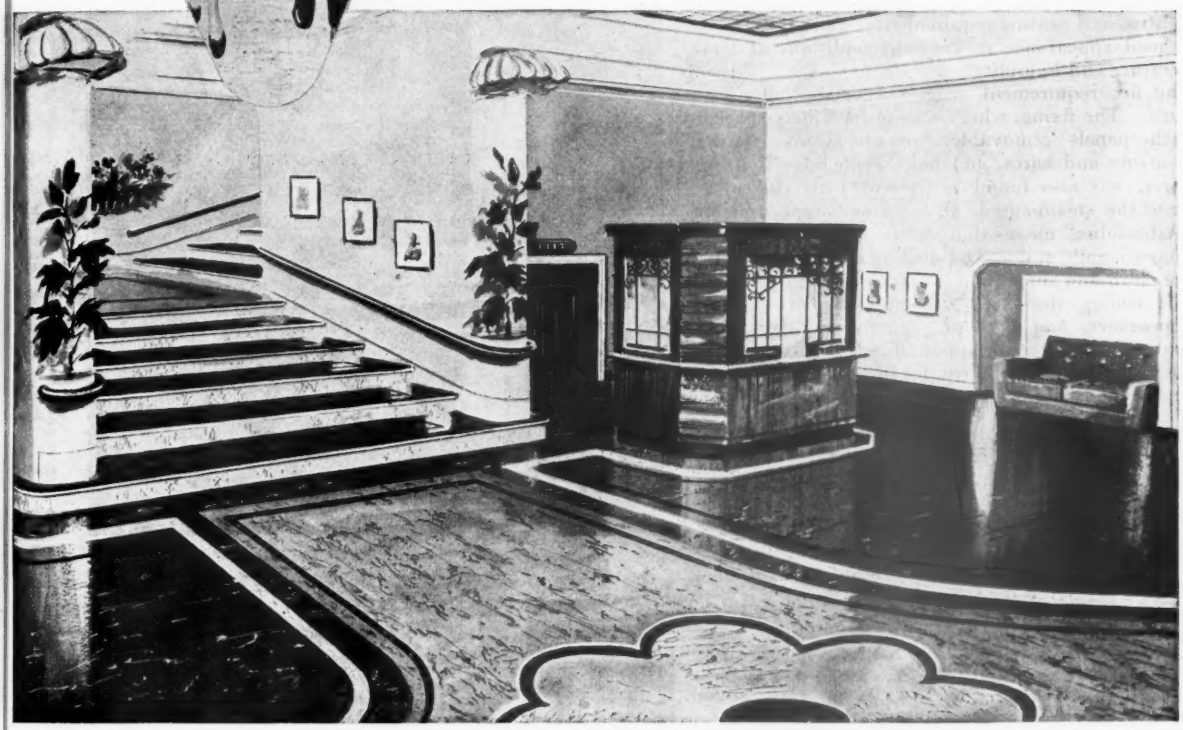
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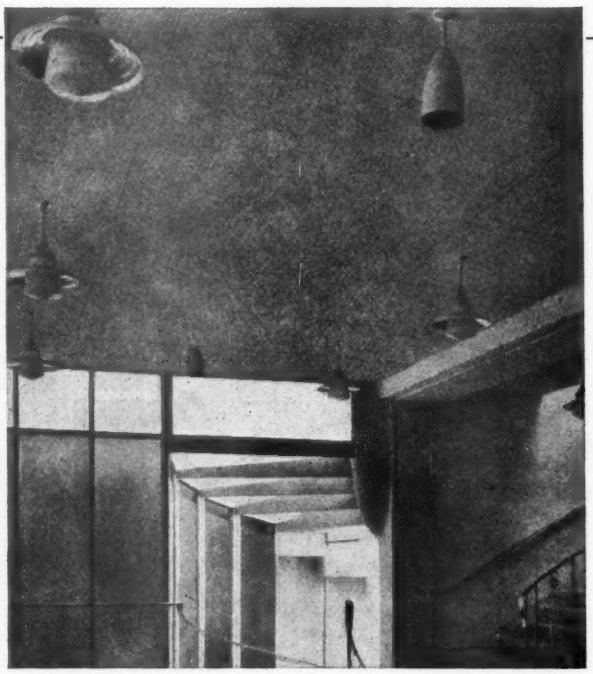
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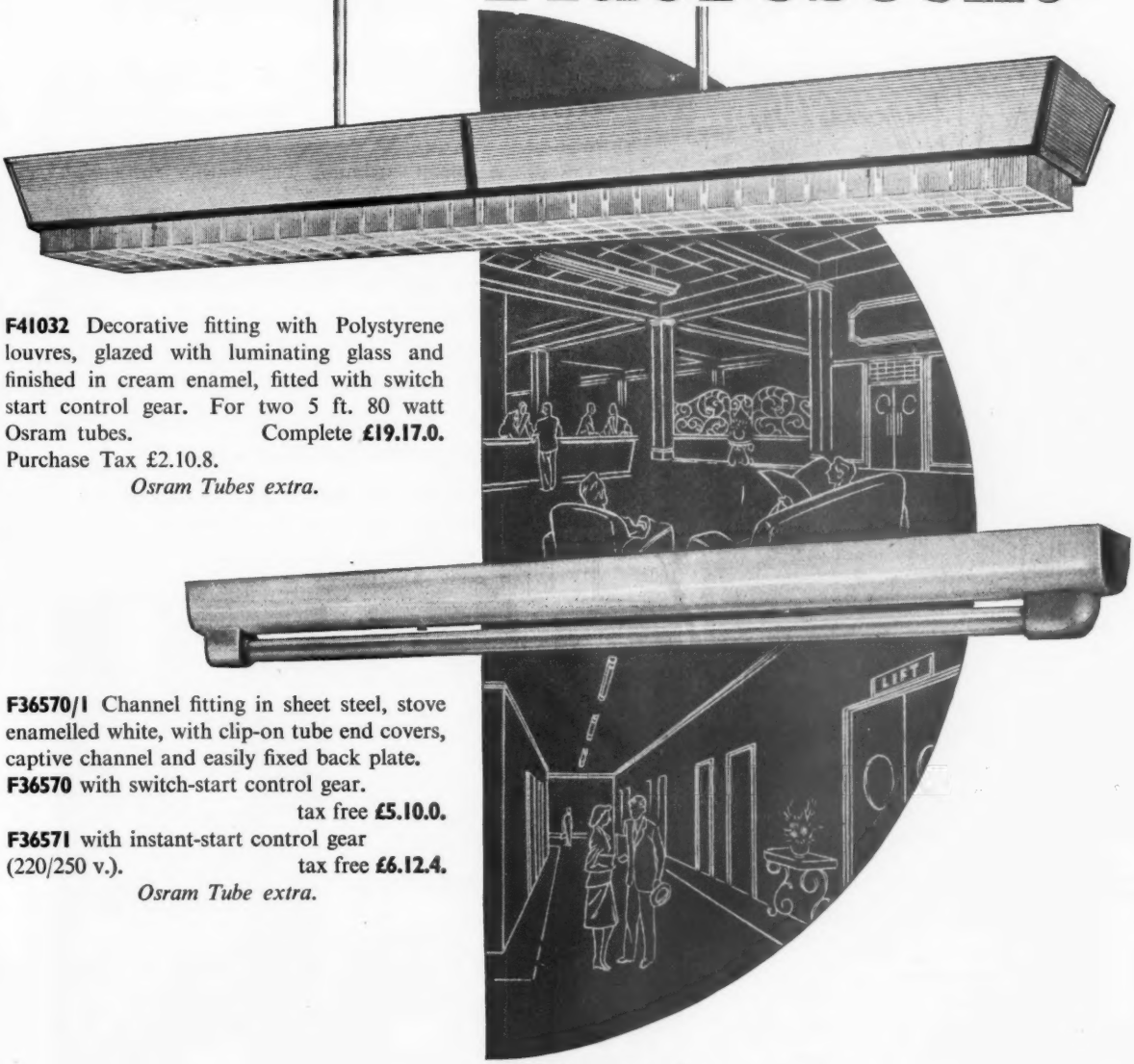
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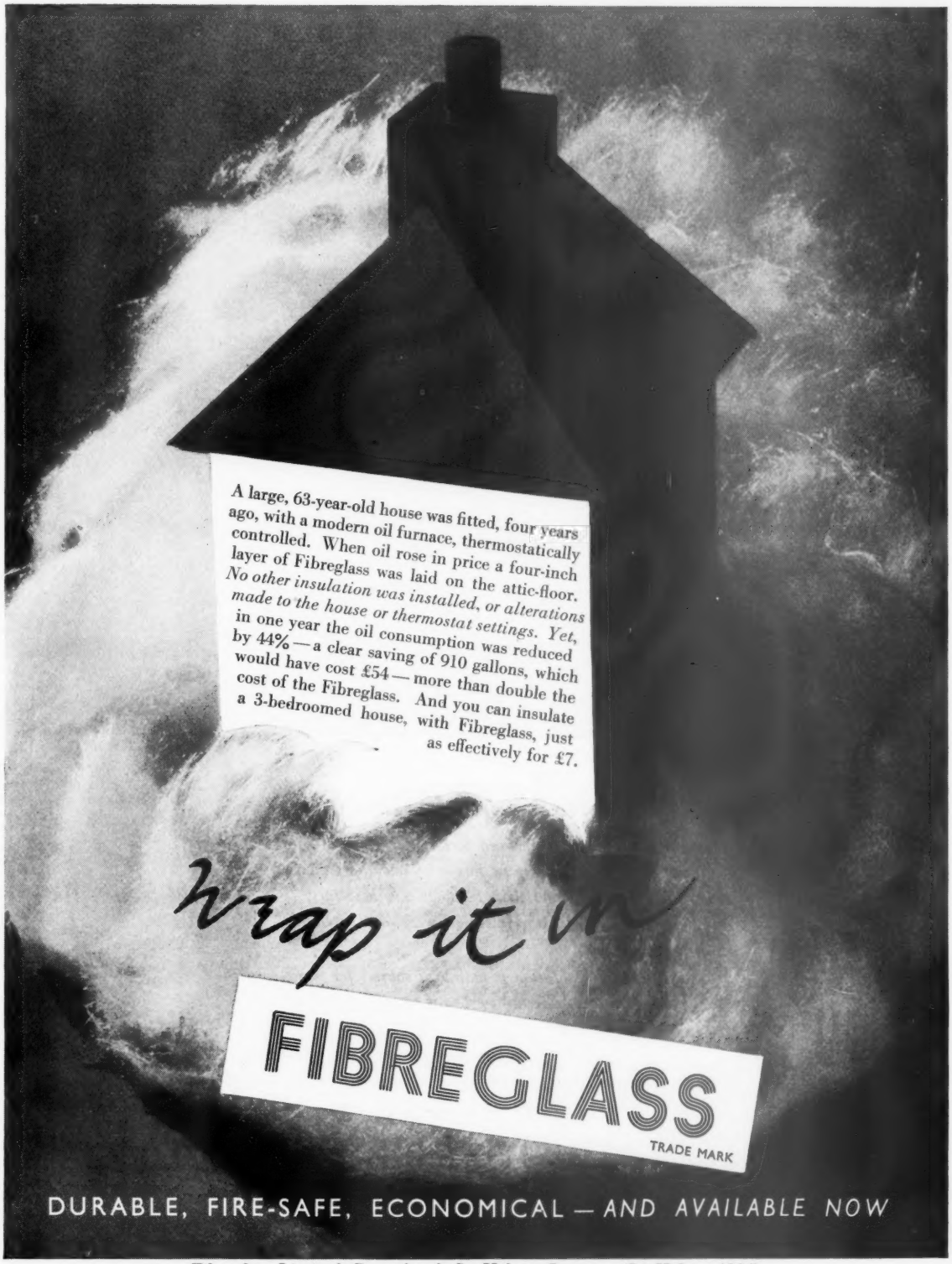


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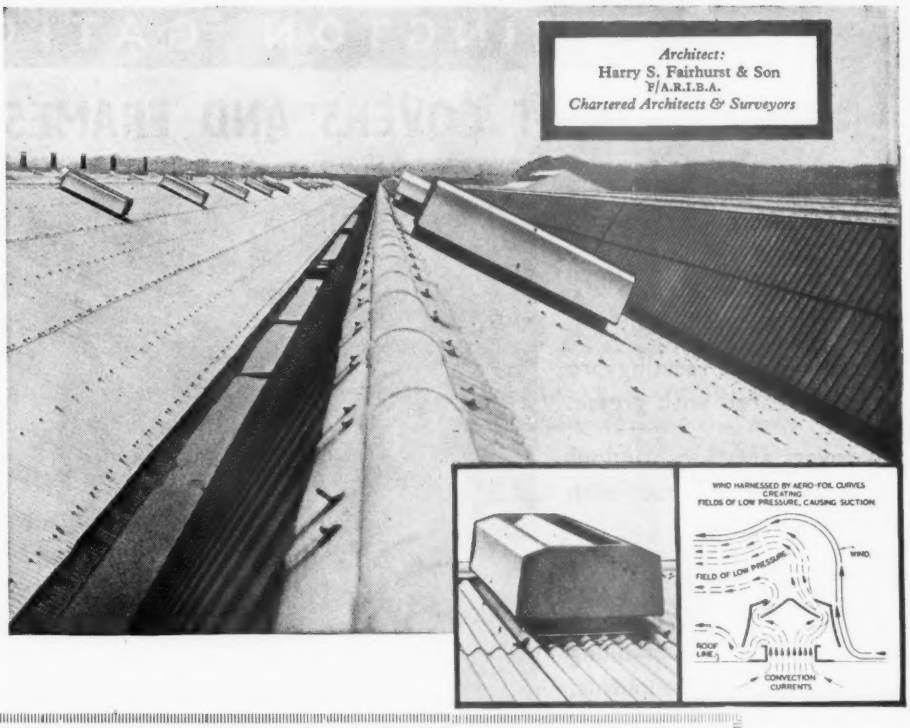
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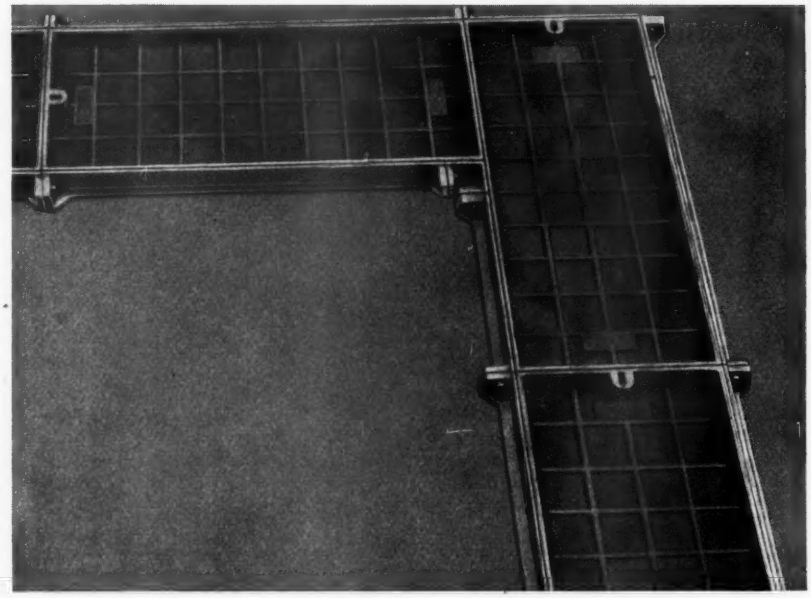
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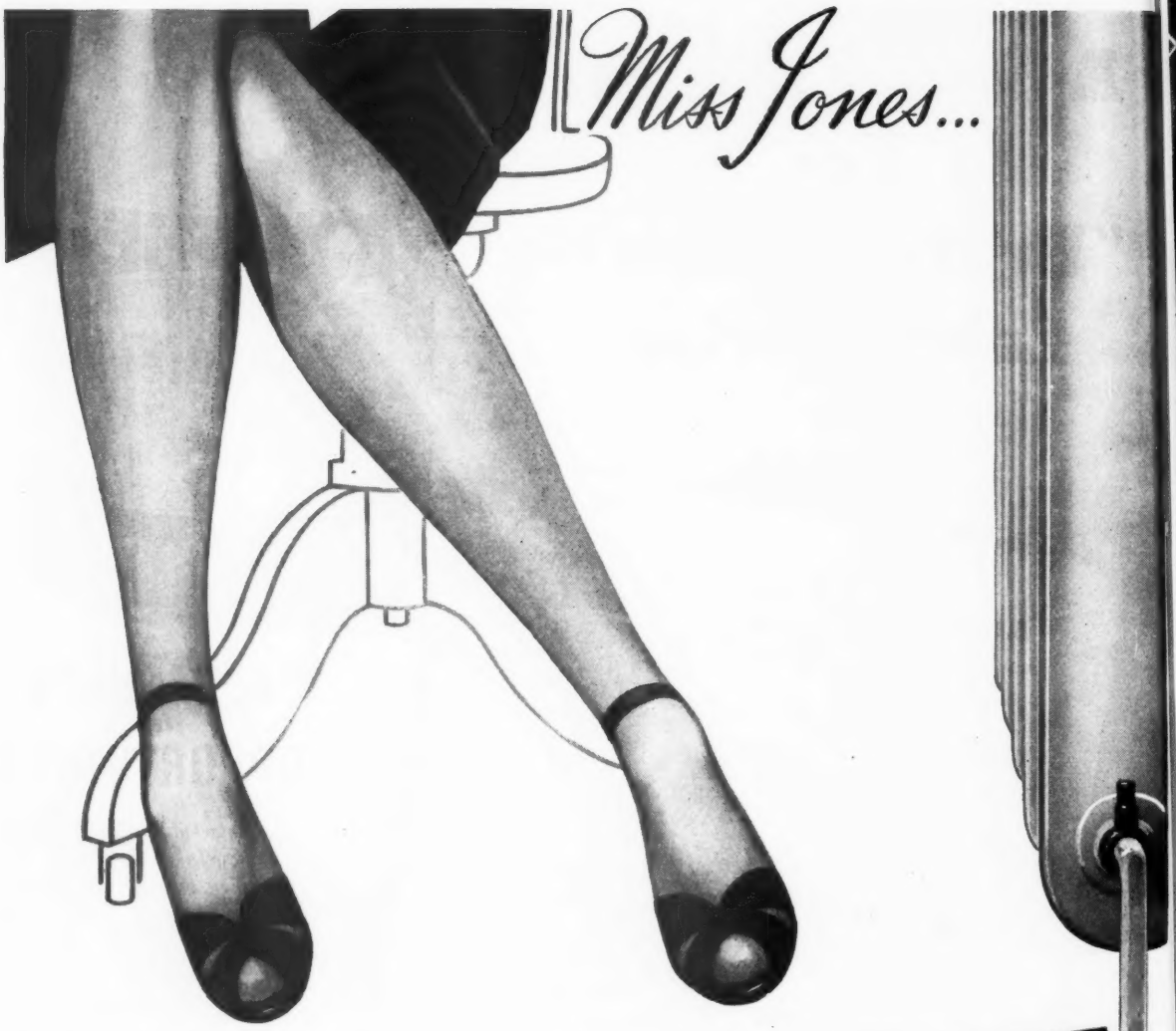
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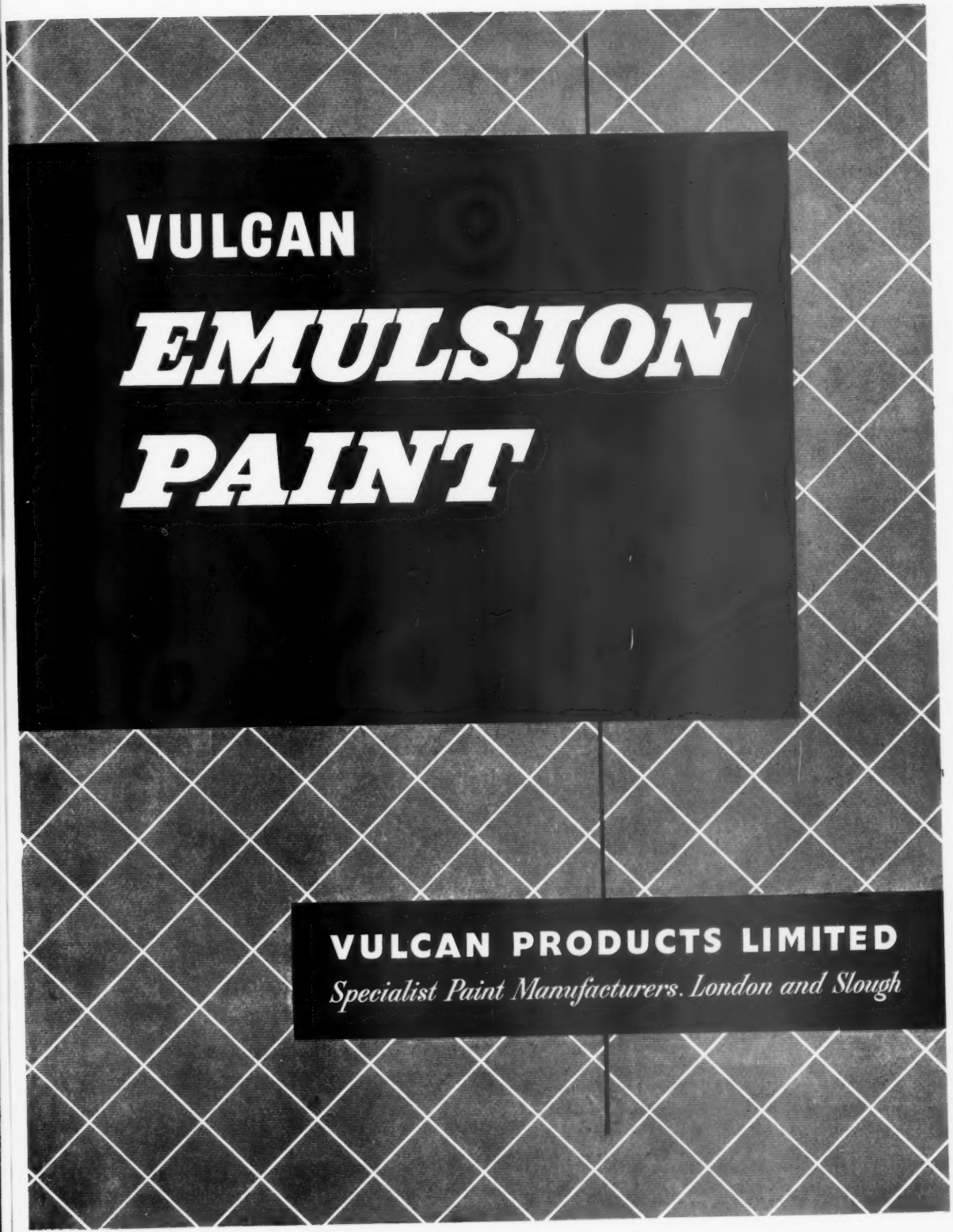
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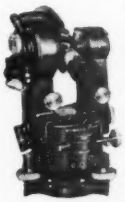
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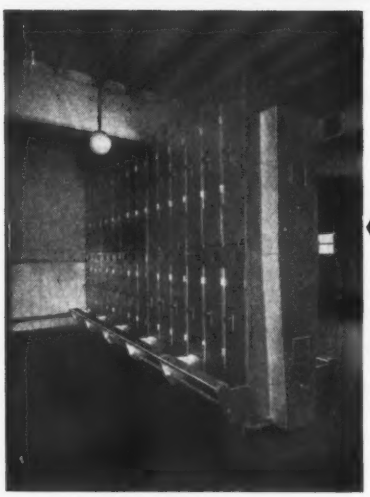
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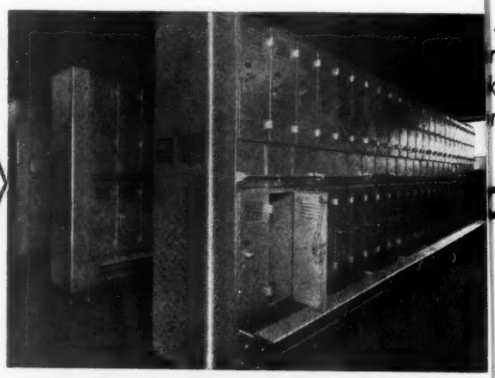
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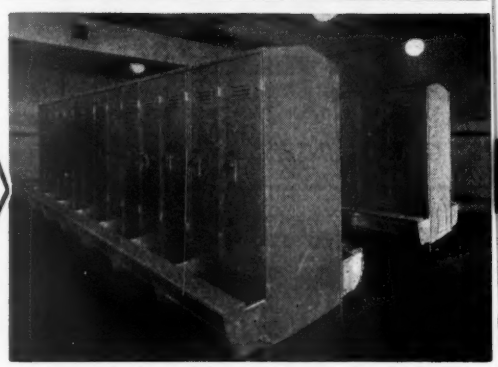
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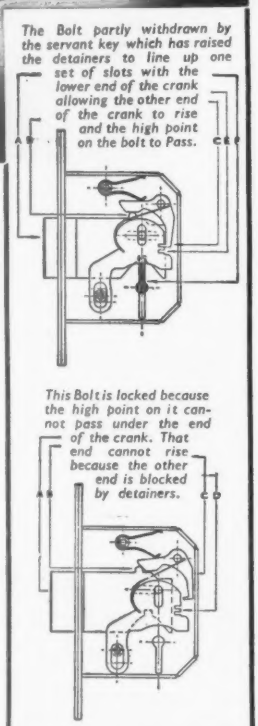
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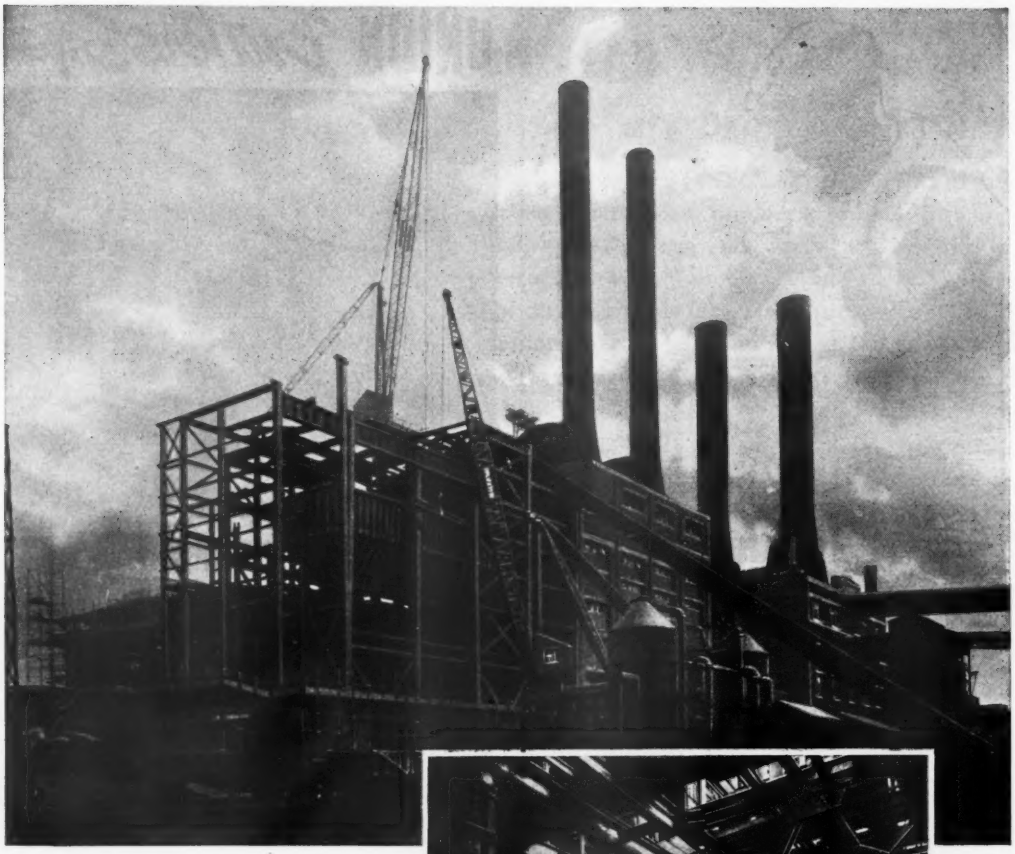
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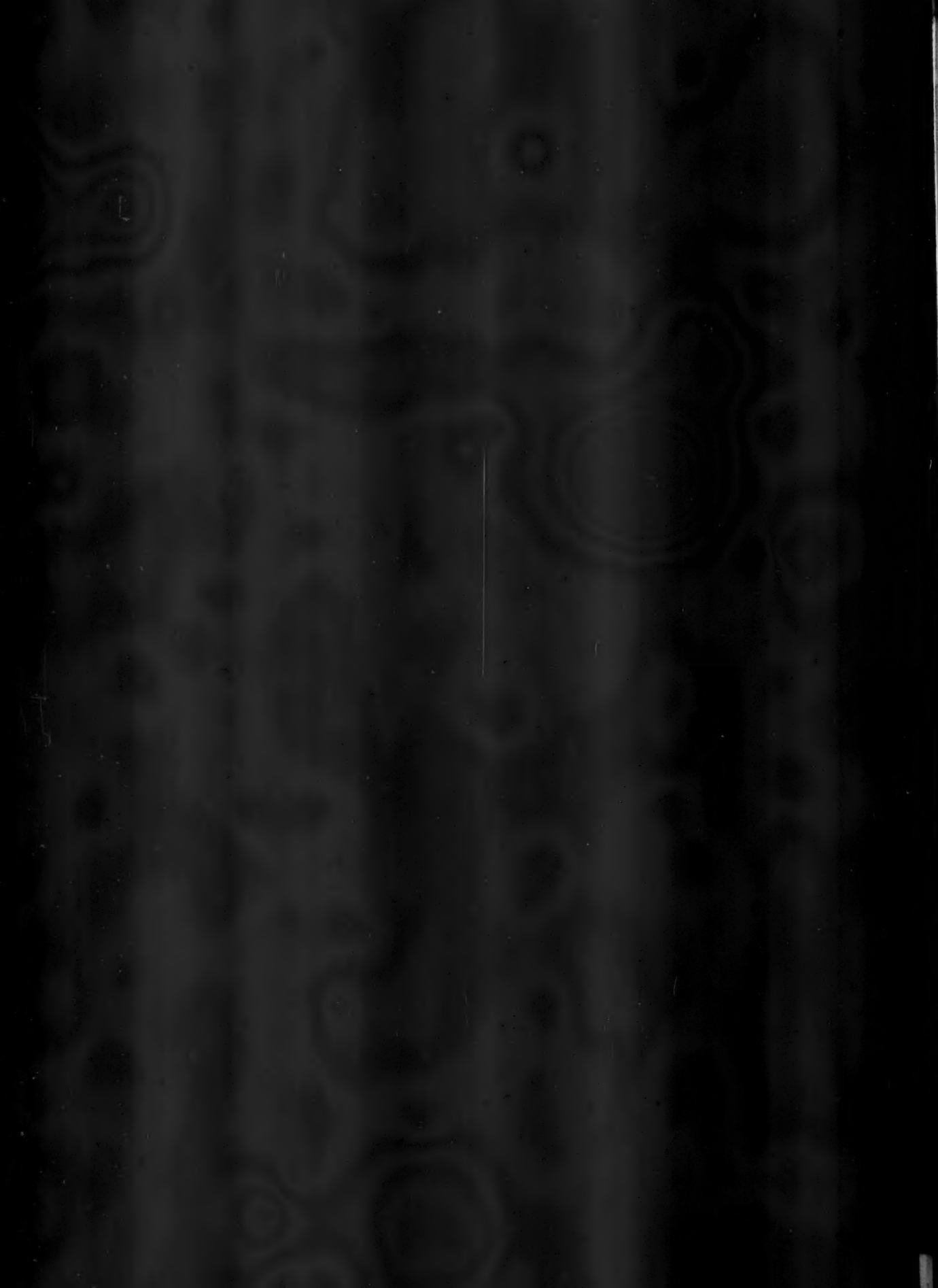
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Vol. 9 No. 3

Journal of Applied Physics



Building Research Station Digest

No. 68

JULY, 1954

Damp-proof Courses

The function of a damp-proof course (d.p.c.) is to prevent, or to reduce as much as necessary, the passage of moisture from parts of walls or floors that cannot be kept dry to parts that must be kept dry. Direct rain-shedding components, such as roof coverings and flashings, and tanking to basements are not discussed in this Digest and are mentioned only in so far as they may relate to damp-proof courses. Damp-proof membranes in solid ground floors are dealt with fully in Digest No. 1, but the main features are repeated here.

Besides the ability of the d.p.c. to resist the passage of moisture and the correctness of its position in the structure, there are other points to be considered if the d.p.c. is to be fully effective at all times. These include (1) the direction of the movement of moisture that is to be resisted, (2) the mechanical properties that may be needed to enable the material to withstand relative movement or deformation under load without impairing its efficacy, or to enable it to be laid properly, (3) the effective life of the material and (4) the preparation of the base on which the d.p.c. is to be laid. These points are dealt with first in this Digest and are followed by notes on the various d.p.c. materials in which their properties are related to these requirements; finally examples are given of damp-proof courses in relation to the part of the building to be protected and to adjoining damp-proof membranes, weatherproof coverings and flashings.

DIRECTION OF MOISTURE MOVEMENT

Some d.p.c. materials are suitable for protection against movement of moisture in any direction; others only against upward movement. Two courses of dense bricks in cement: sand mortar will successfully resist the rise of moisture by capillary action, and it is an advantage to leave the vertical joints unfilled. Good slates are impervious and two courses laid to break joint in cement: sand mortar will also resist capillary rise of moisture. Neither the brick (even with all joints filled with mortar) nor the slate d.p.c. can, however, be relied on to prevent the downward passage of moisture; an impervious material, jointed with laps or welts where necessary, must then be used. A slate d.p.c. will often suffice to prevent undue horizontal movement of moisture between parts of a structure where there is no difference in water pressure between the two parts.

The prevention of upward movement of moisture is normally needed only at one level, i.e., just above ground level; prevention of downward movement is needed at many different levels, e.g., in parapets and chimneys, above lintels in cavity walls, etc. The chief points (above ground level) at which it may be necessary to prevent horizontal movement of moisture are where the outer leaf of a cavity wall is returned at an opening to close the cavity and where the level of the wall d.p.c. differs from that of the floor membrane. Any d.p.c. may have to be stepped at some points by vertical portions.

MECHANICAL PROPERTIES

Flexibility

The material may need to be flexible so that it can be shaped as may be required, or to simplify laying, where there are sudden changes in level or plane. Flexibility is needed where subsequent structural movements may occur that would fracture a rigid material. Flexible materials are, for example, used over openings and to bridge cavities as shown in Fig. 1, G. & J.

Resistance to deformation under vertical loads

Bitumen damp-proof courses may extrude slightly, particularly in hot weather, if pressures are high. It is doubtful whether this would adversely affect the resistance of the d.p.c. to the

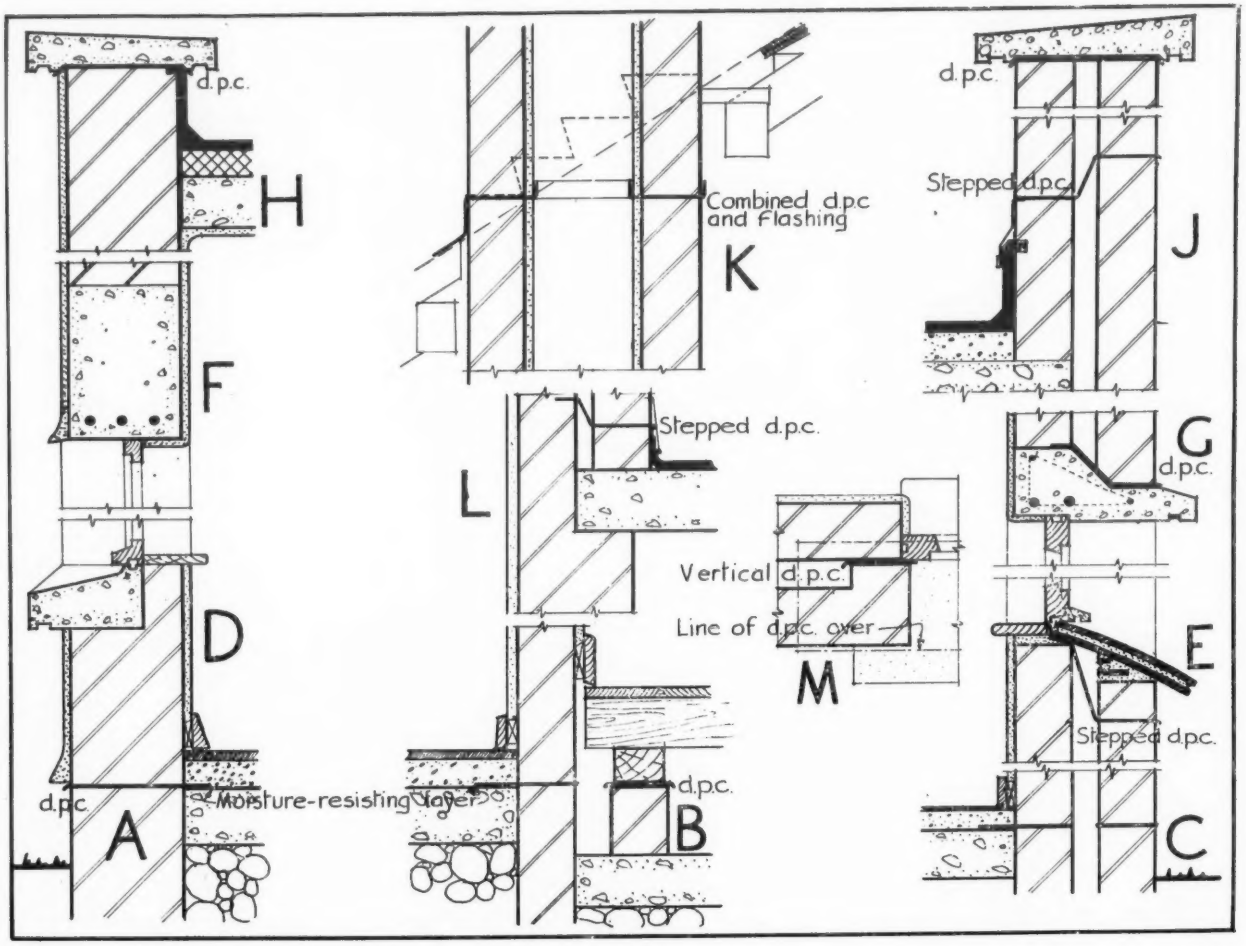

d.p.c.
H
F
D
d.p.c.
Moisture-resisting layer
A
Combined d.p.c and Flashing
K
Stepped d.p.c.
L
Vertical d.p.c.
Line of d.p.c. over
M
d.p.c.
B
d.p.c.
Stepped d.p.c.
J
G
d.p.c.
E
Stepped d.p.c.
C

FIGURE 1

passage of moisture. Even slight yield of the d.p.c. material may be important in the case of high free-standing walls or chimney stacks where structural resistance to wind pressure is essential. Lead or copper is recommended for chimney stacks. See Fig. 1, K.

Resistance to sliding

Horizontal forces, e.g., those resulting from temperature changes or from piling materials against a wall, may cause considerable shearing forces at a damp-proof course. In some cases it may be desirable to limit the shear resistance and to permit movement at the d.p.c. so as to reduce damage or the formation of unsightly cracks, e.g., along the length of a free-standing wall. In others, it may be undesirable or even dangerous to permit any sliding, e.g., transverse movement where materials have been piled against a wall.

Resistance to damage when handling

All d.p.c. materials should be capable of withstanding, without damage, the handling to which they are likely to be subjected on the building site. Thin sheet materials can be punctured or torn by careless handling.

DURABILITY

A d.p.c. under a coping can be renewed fairly easily but the operation becomes increasingly difficult and expensive at lower levels. It is frequently uneconomic to attempt to insert a new d.p.c. in a wall just above ground level and other measures, described in Digest 41, may have to be resorted to. It follows that the material should have an expected life of the same order as that of the building. Durability is discussed in the notes on individual materials.

PREPARATION OF THE BASE

A mortar bed to receive a d.p.c. should be brought to a true and even surface over the full width required and with the edges finished square and true. This applies to both horizontal and vertical surfaces.

MATERIALS

Materials for damp-proof courses are listed in British Standard 743: 1951. They may be grouped under three headings, flexible, semi-rigid or continuous, and rigid units. For the d.p.c. in a wall near ground level which has to resist upward moisture movement only, any of the three types may be used. Flexible sheet materials with joints properly sealed where necessary are suitable for all positions and are essential in certain places. Mastic asphalt or bitumen are used for large areas; mastic asphalt is frequently used for damp-proof courses in parapet walls as an extension to the roof asphalt and as damp-proof courses near ground level.

Flexible materials

Lead for use as a d.p.c. should comply with B.S.1178 and weigh not less than 4 lb. per sq. ft. Lead is very flexible; it will accommodate some movement, can be dressed to complex shapes without fracture and it is highly resistant to sliding. It is not extruded under the pressures likely to be met with in normal building construction. It is completely impervious to moisture; lapped joints are sufficient where moisture movement is upward; for downward movement the joints should be welted. Lead is resistant to ordinary atmospheric corrosion by reason of the formation of a tough resistant surface film. Fresh lime or Portland cement mortar can cause corrosion and the metal should be protected by a coating of bitumen or of bitumen paint of heavy consistency. It is best to paint first the mortar bed on which the lead is to be laid, the underside of the lead before laying and then the top surface after laying. Alternatively one of the proprietary products consisting of lead sheet sandwiched between layers of fabric-reinforced bitumen can be used; they are included under bitumen damp-proof courses.

Copper for use as a d.p.c. should comply with B.S. 1569, Clause 8 (soft temper). Copper is flexible, has a higher tensile strength than lead and will accommodate slight movements. It will not extrude and gives ample resistance to sliding. It is completely impervious and the joints should be treated as described under lead. The metal is not affected by contact with mortars and it does not, in normal use, require any protective coating. There is a risk of staining external walls, especially stone, below a copper d.p.c.

Bitumen without fabric reinforcement is used only on large areas such as in the formation of a damp-proof membrane in a solid ground floor. The kind of bitumen or of pitch and the thickness required is dealt with in Digest No. 1.

Bitumen damp-proof course sheet materials are classified in six types in B.S. 743, hessian base, fibre felt and asbestos base, with and without a core of sheet lead. The British Standard specifies the minimum weights of the constituent materials per square yard, the minimum total weights and the properties of the saturating and coating materials suitable for such climatic conditions as prevail in this country.

The materials are flexible and will accommodate slight movements. They are liable to extrude under heavy pressure and they offer little resistance to sliding. The materials are impervious to moisture and the pressure from the weight of material above is usually sufficient to seal the lap joints; the laps should be at least 4 inches and may be sealed with bitumen if necessary. Bitumen itself is a durable material.

The only constituents liable to decay are the hessian base or fibre felt base, but provided the

bitumen remains undisturbed should decay take place the efficacy of the d.p.c. is not impaired. Bitumen d.p.c. materials should be unrolled with care, especially in cold weather.

Semi-rigid or continuous materials

Mastic asphalt is the only material under this heading and there are two kinds, natural rock asphalt covered by B.S. 1418 and asphalt with limestone aggregate, B.S. 1097. It should be laid by experienced men employed by specialist firms. Asphalt can withstand only very slight distortion, it has fair resistance to sliding at ordinary temperatures, and it may be liable to extrude under very heavy pressures or in very hot climates; recommendations for laying and safeguards against these latter difficulties are given in the two standards mentioned. The material is completely impervious and there are, of course, no joint problems. Good asphalt is a very durable material.

Rigid units

Two courses of slates or dense bricks in cement: sand mortar form a d.p.c. that will resist upward or, in some cases, horizontal passage of moisture but cannot be relied on to prevent downward movement. Slight structural movements may cause cracking but this is not serious where the movement of moisture to be prevented is upward. Both resist sliding. Good slates and bricks are not affected by contact with other building materials or soil. Particular care is needed in the laying and bedding of slates and bricks in damp-proof courses.

Slates should be at least 9 inches long and have an average water absorption of not more than 0·3 per cent.

Bricks should be of the engineering type and have a water absorption of not more than 4·5 per cent.

Mortar for slate and brick damp-proof courses is not expected to be impervious to moisture and acts merely as a bedding material. The mortar mix varies according to position and conditions. Near ground level a 1: 3 Portland cement: sand mix is suitable. For positions not near the ground the mortar may be the same as that in the surrounding wall, but it is better, if practicable, to use a 1: 3 mix.

POSITION

Where a damp-proof course proves to be ineffective it is often found that the fault lies in its position or extent rather than in defects in the material. The position for a d.p.c. may, in some cases, be obvious, e.g., that near ground level; in other cases it is not so readily seen that a barrier to moisture is needed. Again, a d.p.c., though correctly placed, may not extend far enough, so that it is by-passed in some way, often by a render coat, or it may not be joined to other courses.

Examples are shown in Fig. 1 and the following notes are intended to draw attention to those features that contribute to, or detract from, the effectiveness of the d.p.c. Although cavity construction is generally to be recommended, examples of external walls in both cavity brick and in 9-inch solid brick with rendered face are given. A comparison illustrates that in some positions the cavity wall has greater need of damp-proof courses than has the solid wall to complete its resistance to moisture penetration; when provided, however, in a properly constructed wall, complete resistance is assured under any conditions of exposure.

Foot of wall

A d.p.c. in this position may be rendered ineffective by being by-passed or bridged in some way. External render coats are frequently taken to ground level or below for the sake of appearance and sufficient moisture to cause trouble may get round the d.p.c. by this path. It is better to stop the rendering at d.p.c. level and finish as shown at A. An internal division wall with solid floor on one side and suspended timber floor on the other is shown at B. Bridging of the d.p.c. by mortar or rubbish behind the sleeper wall is sometimes a cause of trouble. Where the solid ground floor incorporates a damp-proof membrane or has an impervious covering, the wall d.p.c. must be joined to such membrane or covering; if the levels differ the membrane must be continued as a vertical step between them. If the floor has no damp-proof membrane the vertical step should be carried up the inside of the wall to the top of the floor. The d.p.c. treatment for a cavity wall is shown at C. The practice of stopping the d.p.c. short of the external wall face and pointing the joint with mortar is not recommended.

Sills

A si of porous material, or one built up of lengths of impervious material with vertical joints should be bedded on a flexible or semi-rigid d.p.c. if the sill forms part of a solid wall or if it bridges a cavity. An example is shown at E where the flexible d.p.c. extends to the back of the sill; the d.p.c. should be carried at least 4 inches beyond the ends of the sill. Where the sill is in one length and is of impervious material (dense concrete, stone or metal), or is covered by an impervious material, no d.p.c. is needed under it. A precast concrete sill, properly shaped to throw off water, is shown at D.

Lintels

A precast concrete lintel over an opening in a solid wall is shown at F. Here the rendered face in conjunction with the wall and lintel have to provide all the resistance to moisture penetration. A d.p.c. would serve no useful purpose. In cavity walls many constructions are possible. One form, using a boot lintel with flexible d.p.c. over,

is illustrated at G. In other forms, a precast concrete lintel supports the inner leaf only and the outer is carried on a flat arch. The principle of protection against moisture penetration is, however, the same in all cases. A flexible d.p.c. material is sloped across the cavity to drain any moisture away from the inner leaf; it is tucked into a joint above the lintel or into a groove formed in the lintel and is brought down to the top of the opening and lies between the outer leaf and the window or door frame. The d.p.c. should extend at least 4 inches beyond the ends of the lintel.

Parapets

The design of parapets is dealt with in Digest No. 11. Two examples are shown at H and J. That at H is a solid wall of small height; here there is nothing to be gained by adding a d.p.c. at or near roof level but one under the coping is recommended. Even though the coping is of dense concrete, rain penetration can occur at the many vertical joints. The d.p.c. is shown projecting beyond the faces and the roof covering is extended up the inside face of the wall and is tucked in *under* the d.p.c. A coping with generous overhang and with proper drips helps to keep the wall dry. The example at J shows the treatment of a high cavity parapet wall.

Chimneys

For a chimney at or near the ridge and extending only slightly above the ridge, good weather protection at the top is sufficient in all but very exposed positions. When the exposed part of the stack is more than a few feet in height a d.p.c. is advisable where the stack emerges from the roof. The simplest and most effective form is a combined d.p.c. and flashing of lead or copper at the level shown at K. This form is to be preferred to a stepped flexible d.p.c. Good protection at the top is also needed. A precast concrete capping in one piece with sloping top, ample overhang and properly throated is adequate. Cappings of brickwork and tile creasing even though flaunched with concrete cannot be relied on to keep out moisture indefinitely and a d.p.c. should be provided.

Roofs at different levels

Where the roofs of two adjacent parts of a building are at different levels, the exposed wall above the lower roof becomes an internal wall below that level. If the exposed part of the wall is of cavity construction a stepped d.p.c. joined to the lower roof covering will give complete protection against downward penetration of moisture. The construction when the lower roof is flat is illustrated at L. When the lower roof is pitched the d.p.c. must be stepped.

Openings in cavity walls

Where the outer leaf is returned to close the cavity a vertical d.p.c. should be provided as shown at M. The d.p.c. may be of two courses of slate in mortar but more usually a flexible sheet material is used.

Plinths

The nature and position of damp-proof courses at stone plinths are discussed in Digest No. 20. Fig. 1 in that Digest illustrates the results of by-passing a d.p.c. by porous mortar pointing intended to conceal it.

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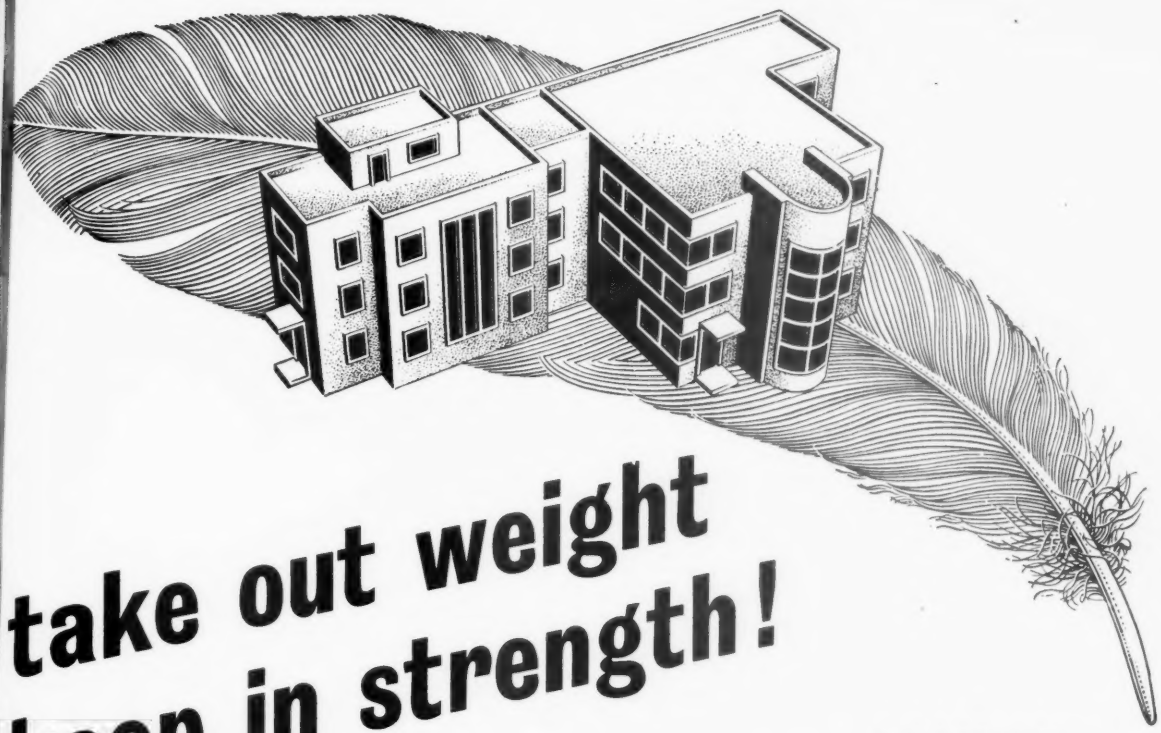
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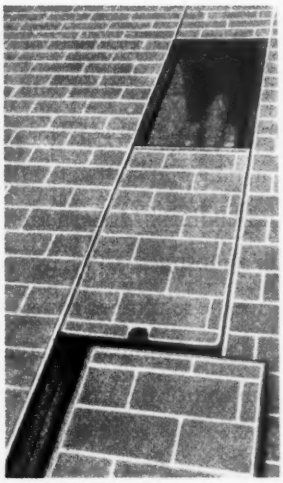
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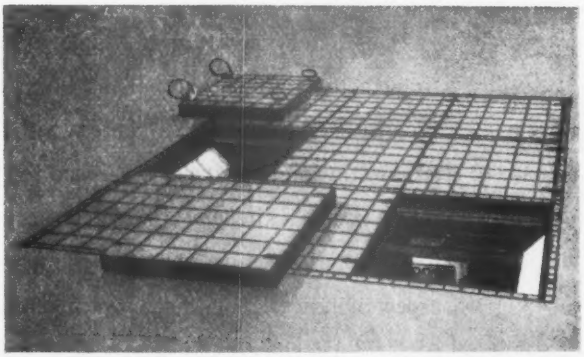
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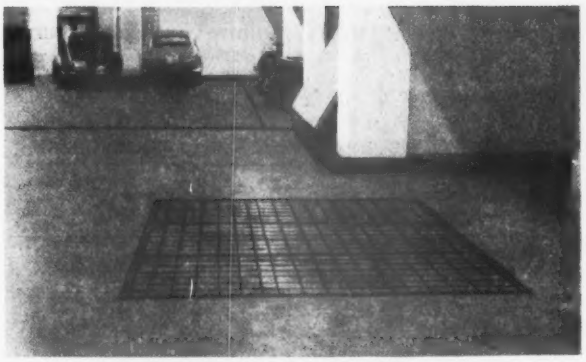
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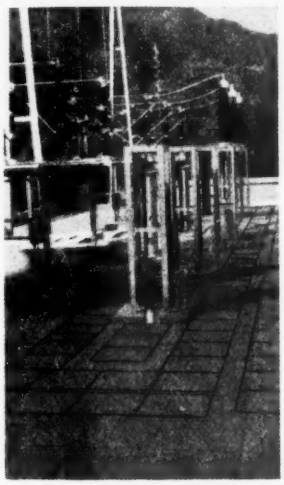
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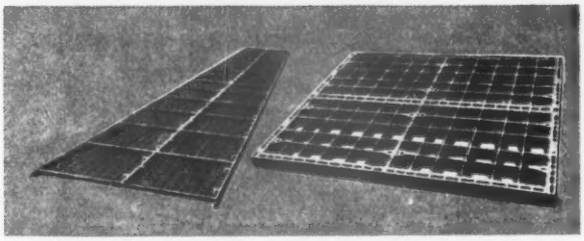


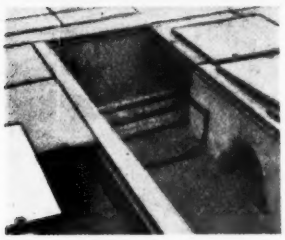






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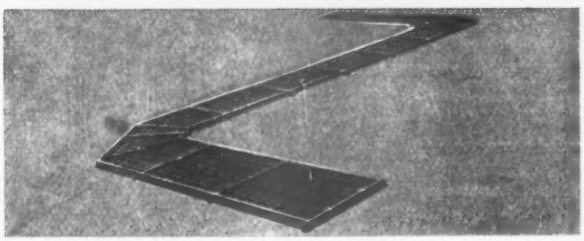
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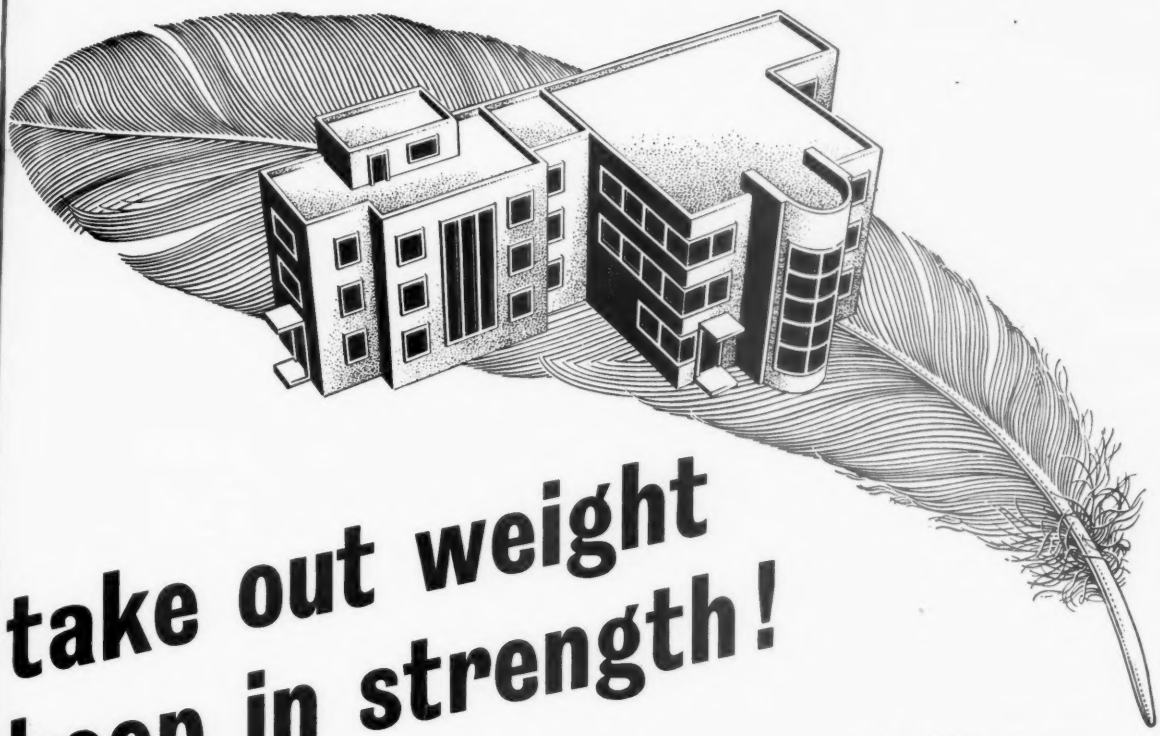
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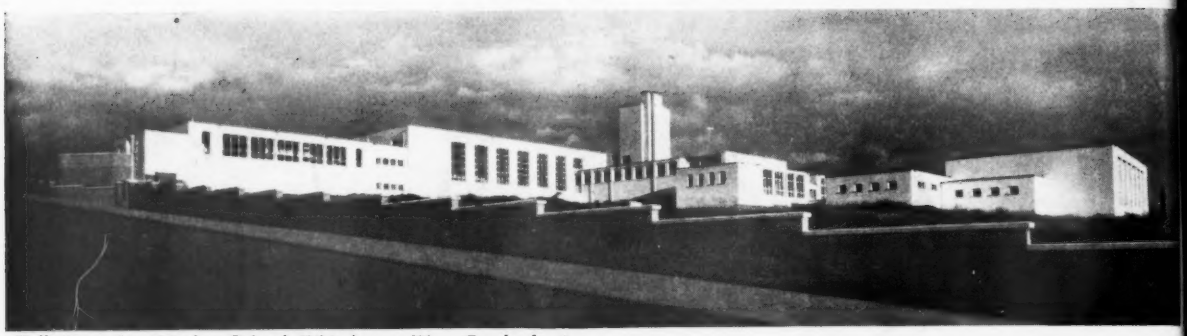
Roof coverings
Side claddings
Plain, corrugated and profiled sheets
Glazing bars, roof lights
Ventilators and window frames
Structural framings and canopies
Partitions and panelling
Lighting and heating fittings
Locks, bolts, catches and plates
Domestic furniture, including chairs
Built-in cupboards
Lockers, meat safes and cabinets
Sections for picture rails
Skirtings and architraves

'KYNAL' AND 'KYNALCORE' WROUGHT ALUMINIUM ALLOYS

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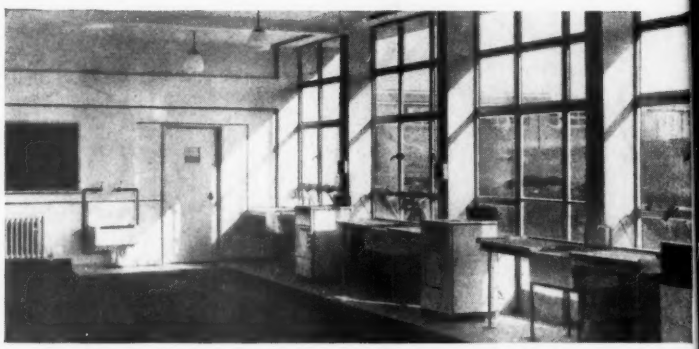
IMPERIAL CHEMICAL INDUSTRIES LIMITED, LONDON, S.W.1

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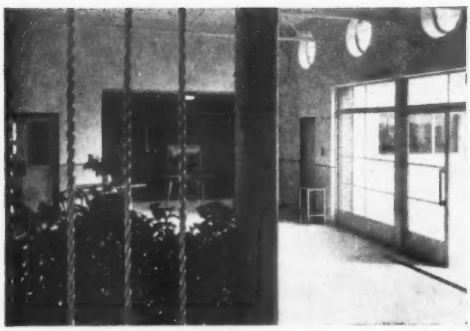


Kells Secondary Modern School, Whitehaven, West Cumberland
County Architect: John H. Haughan, F.R.I.B.A.

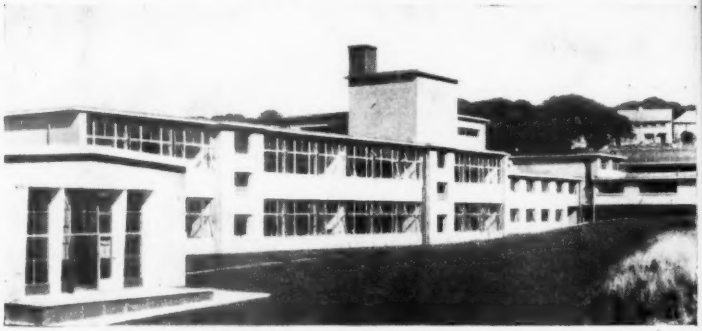
Post-war Schools



Fort Luton County Primary School, Chatham, Kent
Architects: Read & McDermott, F.R.I.B.A., in collaboration with S. H. Loweth, F.S.A., F.R.I.B.A., M.I.Struct.E., County Architect



County Primary School, Maryport, Cumberland



Valley Primary School, Whitehaven, Cumberland
County Architect: John H. Haughan, F.R.I.B.A.



Bourne Secondary Modern School, Ruislip, Middlesex
Architect: Howard V. Lobb, F.R.I.B.A.

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